

CDP-CX90ES/CX270

SERVICE MANUAL

US Model
Canadian Model
CDP-CX90ES/CX270
AEP Model
CDP-CX270



PHOTO : CDP-CX90ES

Model Name Using Similar Mechanism	CDP-CX250
CD Mechanism Type	CDM-40
Base Unit Type	KSM-213BKN/M-N
Optical Pick-up Type	KSS-213B/S-N

SPECIFICATIONS

Compact disc player

Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max 44.6 μW * * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.
Frequency response	20 Hz to 20 kHz $\pm 0.3 \text{ dB}$
Dynamic range	More than 98 dB
Harmonic distortion	Less than 0.0027%

Outputs

	Jack type	Maximum output level	Load impedance
LINE OUT	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	-18 dBm	Wave length: 660 nm
MONITOR OUT	Phono jack	1 Vp-p	75 ohms, unbalanced, sync negative

General

Power requirements	120 V AC, 60 Hz (USA, Canadian model) 220V-230V AC, 50Hz (AEP, German model)
Power consumption	19 W
Dimensions (approx.) (w/h/d)	When the front cover is closed 430 x 198.5 x 477 mm (17 x 7 7/8 x 18 7/8 in.) incl. projecting parts When the front cover is open 430 x 198.5 x 600 mm (17 x 7 7/8 x 23 5/8 in.) incl. projecting parts
Mass (approx.)	9.6 kg (21 lbs 2 oz)

Supplied accessories

Audio cord (2 phono plugs - 2 phono plugs) (1)
Video cord (1)
Remote commander (remote) (1)
Sony SUM-3 (NS) batteries (2)
CD booklet holders (2)
Label (1)

Design and specifications are subject to change without notice.



COMPACT DISC PLAYER
SONY®

TABLE OF CONTENTS

1. SERVICING NOTE	3
2. GENERAL	4
3. DISASSEMBLY	
3-1. Front Panel Assembly	15
3-2. Back Panel Assembly	15
3-3. Table Assembly	16
3-4. Mechanism Deck	17
3-5. Base Unit	17
4. TEST MODE	18
5. ADJUSTMENTS	
5-1. Mechanical Adjustment	21
5-2. Electrical Block Checking	27
6. DIAGRAMS	
6-1. Circuit Boards Location	31
6-2. IC Pin Function	
• IC101 Digital Servo, Digital Signal Processor (CXD2545Q)	32
• IC401 System Control (MB90677)	35
• IC407 OSD (MB90095-OEM166)	38
6-3. Block Diagram	39
6-4. Printed Wiring Board — BD, DISP Section —	43
6-5. Schematic Diagram — BD, DISP Section —	47
6-6. Printed Wiring Board — MAIN Section —	51
6-7. Schematic Diagram — MAIN Section —	55
6-8. IC Block Diagrams	60
7. EXPLODED VIEWS	
7-1. Case and Back Panel Section	65
7-2. Disc table Section	66
7-3. Front panel Section	67
7-4. Mechanism Section-1 (CDM-40)	68
7-5. Mechanism Section-2 (CDM-40)	69
7-6. Base Unit Section-1 (KSM-213BKN/M-N)	70
7-7. Base Unit Section-2 (KSM-213BKN/M-N)	71
8. ELECTRICAL PARTS LIST	72

Notes on chip component replacement

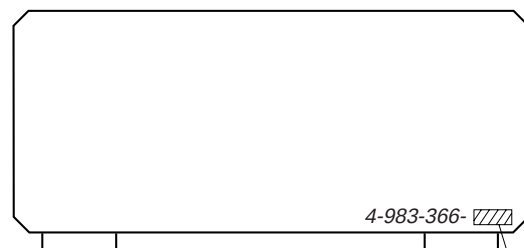
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

MODEL IDENTIFICATION

— BACK PANEL —

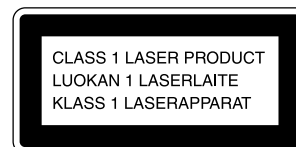


CX270 : US Model	: 0 ☐
CX270 : Canadian Model	: 1 ☐
CX270 : AEP, German Model	: 2 ☐
CX90ES : US Model	: 3 ☐
CX90ES : Canadian Model	: 4 ☐

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION	; INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	; USYNLIG LASERSTRÅLING VED ÅBNING. NÅR SIKKERHEDSÅBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO!	; AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTELYLLE.
VARNING	; LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URÖPPPLAD.
ADVARSEL	; USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.

This caution label is located inside the unit.

For the customers in Canada

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

SECTION 1 SERVICING NOTE

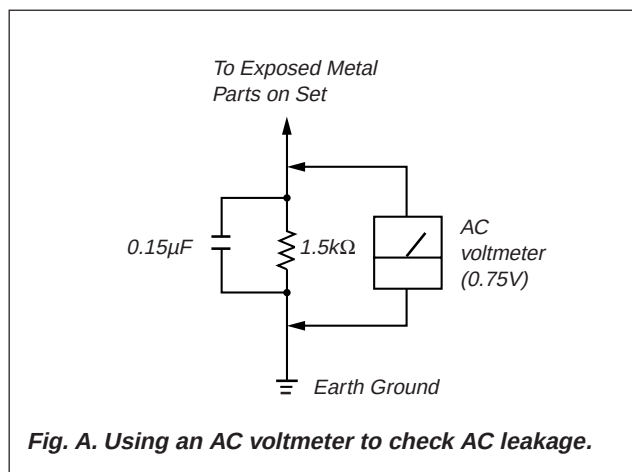
SAFETY CHECK-OUT (US model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE

The AC leakage from any exposed metal part to earth Ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body. During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the “S curve check” in “CD section adjustment” and check that the S curve waveform is output repeatedly.

COLD RESET

This mode erases all the data memorized on the user memory of this unit and sets to the same state as shipment. Take note not to set it accidentally. To set cold reset, press the POWER button while pressing the CLEAR button.

The backup memory of this unit will be saved for about one month.

POSITIONING ON THE OSD (ON SCREEN DISPLAY) SCREEN

This unit can display disc titles, etc. on the TV screen. The screen position can be adjusted to correct screen deviations of the TV monitors used. Turn on the power and press the OPEN button to open the front cover. Then press the TIME/TEXT button next to display the position of the screen. The position can be adjusted by pressing the cursor button of the remote control unit supplied.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

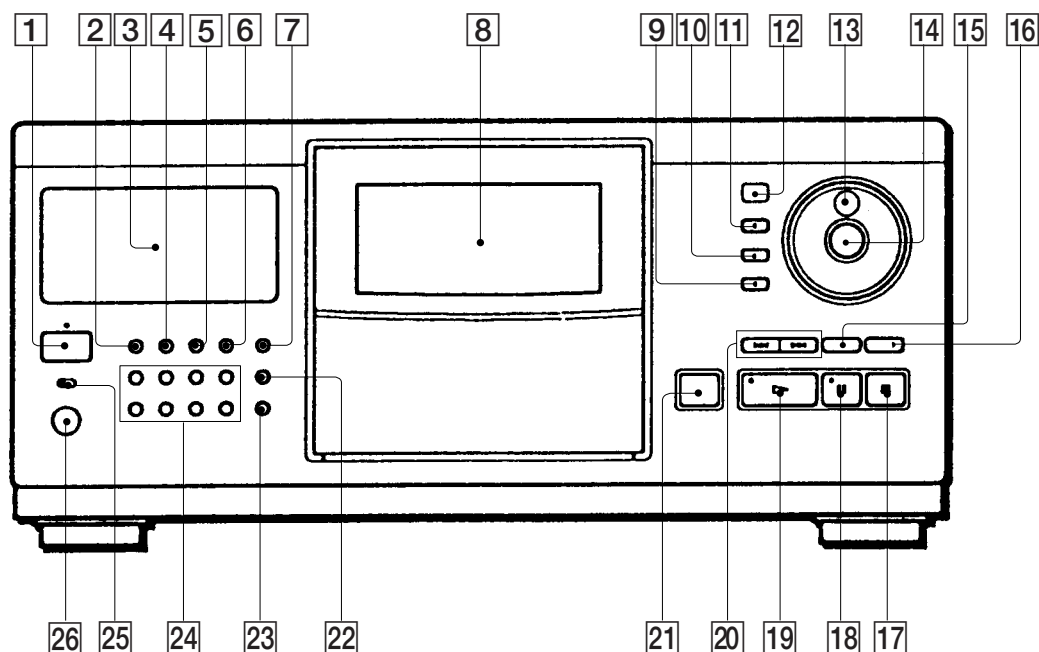
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 2 GENERAL

LOCATION OF PARTS AND CONTROLS

Front Panel



- 1 POWER button
- 2 CONTINUE button
- 3 Front panel display
- 4 SHUFFLE button
- 5 PROGRAM button
- 6 REPEAT button
- 7 TIME/TEXT button
- 8 Front cover
- 9 SORT button
- 10 INPUT button
- 11 PLAYER SELECT button
- 12 Remote sensor
- 13 JOG dial

- 14 ENTER button
- 15 CHECK button
- 16 CLEAR button
- 17 ■ (stop) button
- 18 || (pause) button
- 19 ▷ (play) button
- 20 ◀◀ AMS* ▶▶ button
- 21 OPEN button
- 22 HIT LIST buttons
- 23 X-FADE buttons
- 24 GROUP buttons 1-8
- 25 TIMER switch
- 26 Keyboard jack

* AMS is the abbreviation for Automatic Music Sensor.

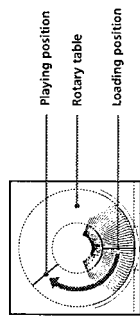
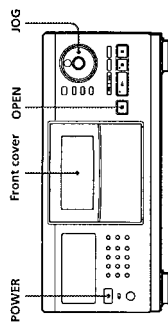
Getting Started

-  When using another Sony CD player together with this player, you can make the supplied remote effective only for this player.
- When using a player equipped with the COMMAND MODE selector:
 - Leave the COMMAND MODE selector of this player to CD2 which is set at the factory and that of another player to CD1 or CD3. Then set the CD1/2/3 switch on the remote supplied for each player accordingly.
 - When using a player not equipped with the COMMAND MODE selector:
 - The command mode of the player without the COMMAND MODE selector is set to CD1. Leave the COMMAND MODE selector of this player and the CD1/2/3 switch on the remote to CD2.

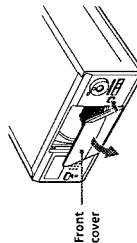
Getting Started

Inserting CDs

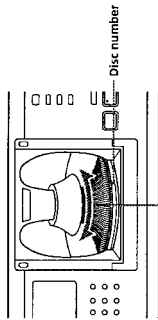
You can insert up to 200 discs into this player.



- 1 Press POWER to turn on the player.
- 2 Press OPEN.

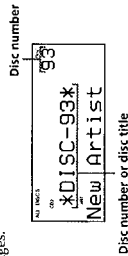


- 3 Turn the JOG dial until you find the disc slot where you want to insert a disc, while checking the disc number (written beside every five slots and also indicated in the display).



Disc slot at the loading position

The disc number at the loading position appears in the front panel display. * If you have labeled the disc with disc title (see page 23), the disc title appears instead of the disc number. As you turn the JOG dial, the disc number or the disc title changes.

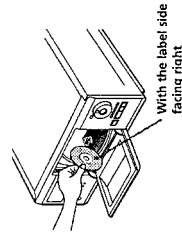


- If you have already inserted discs, the disc number at the playing position appears. When you turn the JOG dial, the displayed disc number changes to the one at the loading position.

- 4 Insert a disc with the label side facing right.

Notes

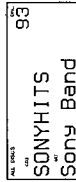
- Make sure you have inserted the disc into each slot at a right angle to the rotary table. If the disc is not put in straight, it may damage the player or the disc.
- Make sure the rotary table comes to a complete stop before inserting or removing discs.



This section is extracted from instruction manual.

Removing CDs

After inserting the disc, you can replace the disc number with the original disc title (see "Labeling Discs" on page 23) to locate it easily when you start playing.

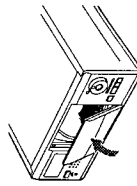


Note

The disc being played does not come to the loading position if you open the front cover during playback. (The disc number flashes in the display.)

If you want to remove the disc being played, press ENTER in the center of the JOG dial after opening the front cover. The disc comes to the loading position. Remove the disc after the rotary table comes to a complete stop.

- 5 Repeat Steps 3 and 4 to insert more discs.
- 6 Close the front cover by pushing up the cover until it clicks.



The rotary table turns and the disc slot at the loading position is set to the playing position. Always keep the front cover closed except when you insert or remove discs.

The supplied CD booklet holders help you locate a disc

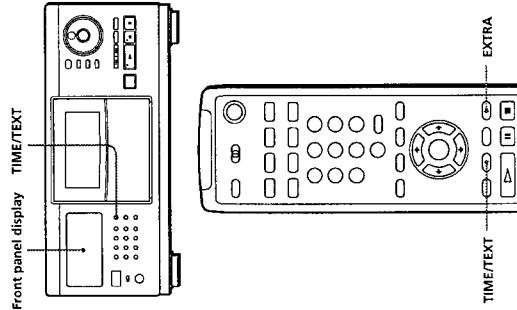
You can store up to 200 CD booklets. Insert a booklet and stick the number label on the film of a pocket and the booklet so that you can locate the disc easily.

Notes

- When you insert an 8 cm (3-inch) CD, be sure to attach a Sony CSA-8 adaptor (not supplied) to the disc. Do not insert an empty 8 cm (3-inch) CD adaptor (CSA-8). It may damage the player.
- Do not attach anything such as seals or sleeves to discs. It may damage the player or the disc.
- If you drop a disc into the player and the disc won't go into the slot correctly, consult your nearest Sony dealer.
- When transporting the player, remove all discs from the player.

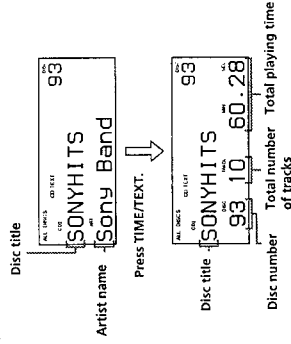
Using the Front Panel Display

You can check information about the disc using the front panel display.



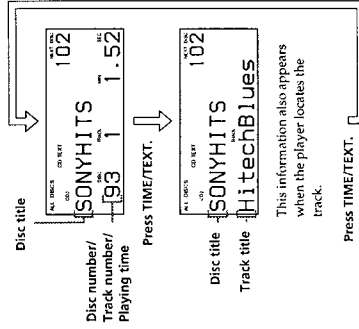
Display information before you start playing

The front panel display shows the current disc title and artist name. If you have not labeled the disc, the disc number and "New Artist" appear instead of the Disc Memo information (see "Labeling Discs" on page 23). When you press the TIME/TEXT button, you can check the total number of tracks and total playing time of the disc.



Display information while playing a disc

Each time you press the TIME/TEXT button, the front panel display shows the current disc information as shown below.



If you have not labeled the track (see "Labeling each track" on page 24), the front panel display information does not change when you press the TIME/TEXT button.

If you have CD-TEXT discs

CD-TEXT discs have information, such as the disc titles or artist names, memorized in a blank space on the discs where there is no information on normal discs. The CD-TEXT information (disc title, artist name and track title) will be stored as the Disc Memo automatically, so you can check that information in the same way as shown above.

To play disc highlights

- Some CD-TEXT discs have a feature to play only the highlights of the discs.
- You can cancel playing disc highlights by pressing the $\triangleright$ or $\triangleleft/\triangleright$ buttons on the remote.
 - You can play the previous or next highlight on the disc by pressing the $\triangleleft/\triangleright$ buttons (AMS; see page 16).
 - You can repeat disc highlights (see page 17). Press REPEAT. The player repeats all the highlights on the disc. During Repeat 1 mode, the player repeats only the current highlight.

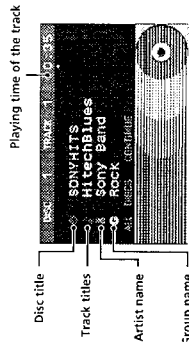
Using the On-Screen Display

If you connect the player to your TV as indicated on pages 4 and 5, you can control the player while checking information with the on-screen display on the TV screen.

After connecting the player and TV, select the video input on the TV. If you have a Sony TV, you can select the video input by pressing the TV/VIDEO button on the supplied remote.

Display information while playing a disc

The on-screen display shows the current disc information stored in the Custom Files (see page 23) and playing time of the track.



Display information while controlling the player

The on-screen display shows information useful for each operation.



The following icons are used in the on-screen display.

When the on-screen display shows	It means
↑/↓/←/→	You can select the items using the ↑/↓/←/→ buttons on the remote
[H]	The track is stored in the Hit List (see page 29)
[T]	The disc is CD-TEXT disc
Ⓢ	The disc is inserted in the second player

Selecting a disc when connected to the second player

- 1 Press **PLAYER SELECT** to select the player in which the disc you want is inserted.
When you select the second player, "2nd PLAYER" appears in the front panel display.

- 2 Select the disc you want following the procedure in "Selecting a disc on the player" or "Selecting a disc directly using the remote."

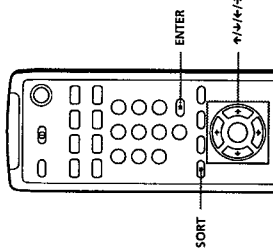
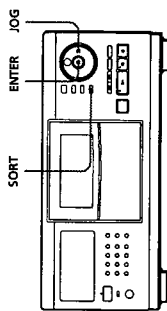
Locating a disc by scanning each disc title (Memo Scan)

You can locate a disc you want to play quickly by scanning the disc titles (see page 23) in the front panel display and start playing.
Note that you cannot use this function in ALL DISCS Shuffle Play mode.

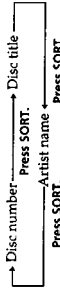
- 1 Press **MEMO SCAN**.
"MEMO SCAN" appears and the disc titles scroll in the front panel display.
To cancel Memo Scan
Press **MEMO SCAN** again.

- 2 Press **▷** when the disc title of the disc you want to play appears.
The disc is set to the playing position, and the player starts playing.
In Program Play mode, the disc will be added to the end of the program if you press the **ENTER** button instead of the **▷** button.

Note
If "NO ENTRY" appears in the front panel display, no disc has been labeled with disc titles. Try the Memo Scan function again after labeling the discs with disc titles (see page 23).



Each time you press the **SORT** button, the sorting method changes as shown below.



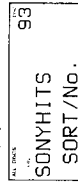
When you sort by	The display shows the discs in
Disc number	Numerical order of the disc numbers
Disc title*	Alphabetical order of the disc titles
Artist name*	Alphabetical order of the artist names

* Label discs to sort them by disc titles and artist names (see "Labeling Discs" on page 23).

When locating a disc by disc number

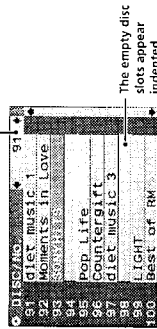
- 1 Press SORT repeatedly to select the sorting method.

Front panel display



On-screen display

The on-screen display shows disc titles from disc number 91.



The empty disc slots appear indented.

- 2 Turn the JOG dial (when using the remote, press $\uparrow/\downarrow$ repeatedly) to select the disc you want. When using the remote, you can skip every 10 discs by pressing the $\leftarrow/\rightarrow$ buttons.

- 3 Press ENTER to start playing the disc.

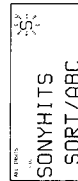
The disc number being played is highlighted in the on-screen display.

When locating a disc by disc title

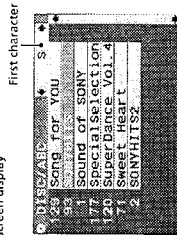
You can search a disc title by specifying the first character of the disc title. When you specify a character, the disc titles starting with the character appear.

- 1 Press SORT repeatedly to select the sorting method.

Front panel display



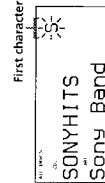
On-screen display



First character

- 2 Press $\leftarrow/\rightarrow$ on the remote repeatedly to select the first character of the disc title you want.

Front panel display



Each time you press the $\leftarrow/\rightarrow$ buttons, you can select alphabets and then numbers. The characters which have not been used as the first character of disc titles will be skipped and the next one will appear.

Notes

- When searching disc titles, blanks before the first character in the disc title are ignored.
- When searching disc titles, upper and lower case characters cannot be differentiated.

- 3 Turn the JOG dial (when using the remote, press $\uparrow/\downarrow$ repeatedly) to select the disc you want.

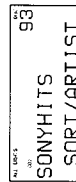
- 4 Press ENTER to start playing the disc.

When locating a disc by artist name

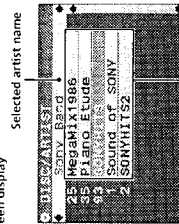
You can locate a disc by artist name. When you specify an artist name, the disc titles of the artist appear.

- 1 Press SORT repeatedly to select the sorting method.

Front panel display



On-screen display



Disc titles of the artist

(Continued)

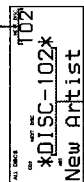
- 2 Press $\leftarrow/\rightarrow$ on the remote repeatedly to select the artist name.
- 3 Turn the JOG dial (when using the remote, press $\uparrow/\downarrow$ repeatedly) to select the disc you want.
- 4 Press ENTER to start playing the disc.

Specifying the Next Disc to Play

You can specify the next disc to play while playing a disc in Continuous or 1 DISC Shuffle Play mode.

While playing a disc, turn the JOG dial until the disc number or disc title (see page 23) you want appears in the front panel display.

Next disc number



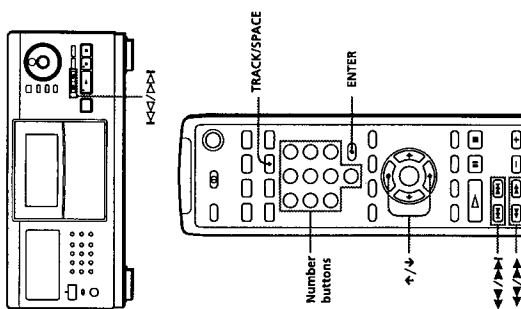
Next disc number or disc title appears for a while.

After the current disc is played, the next disc you have specified starts playing. If you want to skip to the next disc right away, press ENTER while playing the current disc.

To cancel the disc you have specified Press CONTINUE twice.

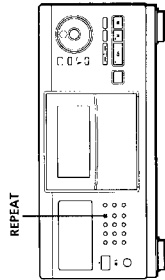
Locating a Specific Track or a Point in a Track

You can quickly locate any track while playing a disc using the $\leftarrow/\rightarrow$ (AMS: Automatic Music Sensor) buttons or number buttons on the remote. You can also locate a specific point in a track while playing a disc.



Playing Repeatedly

You can play discs/tracks repeatedly in any play mode.



Press REPEAT while playing a disc. "REPEAT" appears in the front panel display. The player repeats the discs/tracks as follows:

When the disc is played in	The player repeats
ALL DISCS Continuous Play (page 10)	All tracks on all discs
1 DISC Continuous Play (page 10)	All tracks on the current disc
ALL DISCS Shuffle Play (page 18)	All tracks on all discs in random order
1 DISC Shuffle Play (page 18)	All tracks on the current disc in random order
Program Play (page 18)	The same program

To cancel Repeat Play
Press REPEAT repeatedly until "REPEAT OFF" appears in the front panel display.

Repeating the current track (Repeat 1)

You can repeat only the current track.

While the track you want is being played, press REPEAT repeatedly until "REPEAT 1" appears in the front panel display.

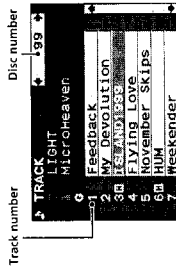
To locate	Press
the next or succeeding tracks	▶◀▶ repeatedly until you find the track
the current or preceding tracks	◀◀◀ repeatedly until you find the track
a specific track directly [I]	TRACK/SPACE, the number button of the tracks and then ENTER. When you locate a track with a number over 10, first press the tens digit first, then the ones digit.
a point in a track while monitoring the sound [I]	▶▶ (forward) or ◀◀ (backward) and hold down until you find the point sound
a point in a track quickly by observing the display [I]	▶▶ (forward) or ◀◀ (backward) and hold down until you find the point during pause. You will not hear the sound during the operation.

Note
If "OVER" appears in the front panel display, the disc has reached the end while you were pressing the ▶▶ button. Press ◀◀ or ▶◀ to go back.

Checking the track titles using the on-screen display [I]

After labeling tracks (see page 24), you can select the track you want before you start playing while checking the track titles.

- 1 Press TRACK/SPACE.

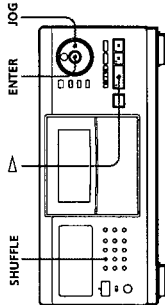


The track titles stored in Delete File appear indented (see "Storing Specific Tracks" on page 28).

- 2 Press ▶/◀ to select the track you want.
- 3 Press ENTER to start playing the track. The track title being played is highlighted in the on-screen display.

Playing in Random Order (Shuffle Play)

You can have the player "shuffle" the tracks and play in random order. The player shuffles all the tracks on all discs or on the disc you specified.



- 1 Press SHUFFLE to select ALL DISCS or 1 DISC Shuffle Play mode. Each time you press SHUFFLE, "ALL DISCS" or "1 DISC" appears in the front panel display.

When you select	The player plays
ALL DISCS	All tracks on all discs in random order. When connected to the second player, the player selects the tracks from both this player and the second player.
1 DISC	All tracks on the selected disc in random order

- 2 When you want to specify the disc for 1 DISC Shuffle Play, turn the JOG dial until the disc number or disc title (see page 23) you want appears in the front panel display.

- 3 Press ENTER or ▶. ALL DISCS or 1 DISC Shuffle Play starts. "CD" appears in the front panel display while the player is "shuffling" the discs or the tracks.

To cancel Shuffle Play
Press CONTINUE.

You can start Shuffle Play while playing
Press SHUFFLE, and Shuffle Play starts from the current track.

You can directly select a disc for 1 DISC Shuffle Play [I]
See "Selecting a disc directly using the remote" on page 13.

You can go to the next disc during 1 DISC Shuffle Play [I]
Press DISC SKIP +.

You can specify the next disc to play during 1 DISC Shuffle Play
Turn the JOG dial to specify the next disc. After all the tracks on the current disc are played in random order, the next disc starts playing. If you want to skip to the next disc right away, press ENTER while playing the current disc.

Notes

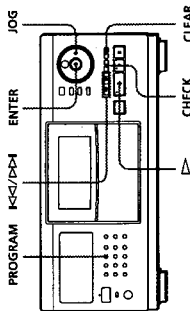
- You cannot specify the next disc to play during ALL DISCS Shuffle Play.
- Even if you press the [I] button or turn off the player during ALL DISCS Shuffle Play, the player remembers which discs/tracks were played and which were not. Therefore, if you want to start ALL DISCS Shuffle Play again from the beginning, be sure to repeat the procedure from Step 1.

Creating Your Own Program (Program Play)

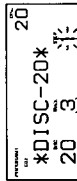
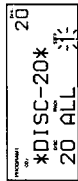
You can arrange the order of the tracks and/or discs to create three different programs and the programs are stored automatically. A program can contain up to 32 "steps" — one "step" may contain a track or a whole disc.

You can also create programs by different procedure using the remote. You can use both the front panel and the on-screen display information when programming in either procedure.

Creating a program on the player



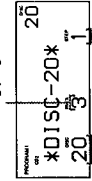
- 1** Press PROGRAM until the program number you want (PROGRAM 1, 2 or 3) appears in the front panel display.
- If a program is already stored in the selected program number, the last step of the program appears in the front panel display. When you want to erase the whole program, hold down CLEAR until "ALL CLEAR" appears in the front panel display (see page 20).
- 2** Turn the JOC dial until the disc number you want appears in the front panel display.
- 3** To program a whole disc, skip this step. Press **←/→/▶** until the track number you want appears in the front panel display.



Track number

- 4** Press ENTER or PROGRAM.

The track being programmed



The disc being programmed

- 5** To program other discs/tracks, do the following:

Repeat Steps	
To program	2 and 4
Other discs	3 and 4
Other tracks on the same disc	3 and 4
Other tracks on other discs	2 through 4

- 6** Press **▶** to start Program Play.

To cancel Program Play
Press CONTINUE.

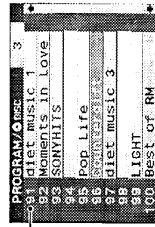
- ⚠** The programs remain in even after Program Play ends
When you press the **▶** button, you can play the same program again.
- ⚠** When you press PROGRAM during Continuous or Shuffle Play
The program will be played after the current track.
- ⚠** The programs remain until you erase them
If you replace discs, the programmed disc and track numbers remain. So, the player plays only the existing disc and track numbers. However, the disc and track numbers that are not found in the player or on the disc are deleted from the program, and the rest of the program is played in the programmed order.
- ⚠** When connected to the second player, you can program tracks/discs of both players in the same program
When selecting a disc, press PLAYER SELECT repeatedly until "2nd PLAYER" appears in the front panel display. Then select the disc you want to program.

Creating programs while checking the on-screen display information

While creating programs

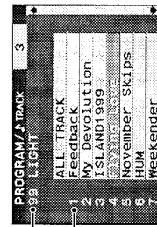
You can select the discs/tracks by checking the titles. While selecting a disc, the on-screen display shows the disc titles in the order of the disc number.

Disc number



While selecting a track, the on-screen display shows the track titles.

Disc number and disc title

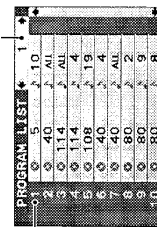


Track number

When checking the programs

The on-screen display shows the disc and track numbers of each step in the programmed order.

Step number

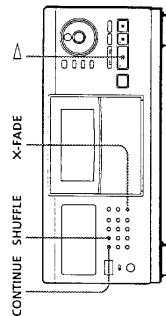


The program number (1, 2 or 3) you are checking appears in the upper right corner of the on-screen display.

Playing Alternately (X-Fade Play)

When you connect the second player (see page 6), you can play the discs/tracks in this player and those in the second player alternately in Continuous Play and Shuffle Play modes.

Each time the current player changes to the other player, the sound from both players is mixed. The current player ends play by fading out, and the other player starts play by fading in.



- 1** Press CONTINUE or SHUFFLE to select the play mode you want.
- 2** Press X-FADE.
"X-FADE" appears in the front panel display and the X-FADE button lights up.
- 3** Press **▶** to start playing.

When you select The player alternately plays

ALL DISCS	Tracks of all discs from each player in the order of the disc number
Continuous Play (page 10)	
1 DISC Continuous Play (page 10)	Tracks on the selected discs from each player
ALL DISCS Shuffle Play (page 18)	Tracks of all discs from each player in random order
1 DISC Shuffle Play (page 18)	Tracks on the selected discs from each player in random order

The player automatically selects the repeat mode when X-Fade Play starts. So, the play doesn't stop if the player has played all the discs/tracks in one player ahead of the other player.

Playing CDs

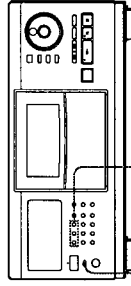
To cancel X-Fade Play
Press X-FADE again.

Notes

- You cannot use the Sort and Group Play functions during X-Fade Play.
- During X-Fade Play, the PLAYER SELECT, INPUT and ENTER buttons and the JOG dial do not work.
- You cannot use the X-Fade Play function when connected to the CD player CDP-CX153.

Playing Using a Timer

You can start playing a disc at any time you want by connecting a timer (not supplied). Please also refer to the instructions for the timer if you need help.



TIMER Play mode buttons

- 1 Press one of the play mode buttons to select the play mode you want.
- 2 Set TIMER on the player to PLAY.
- 3 Set the timer to the time you want.
The player turns off. When the set time comes, the player turns on and starts playing.
- 4 After you are finished using the timer, set TIMER on the player to OFF.

Using a Sony Receiver With the On-Screen Display Control Function

If you have a Sony receiver (amplifier) with the on screen display control function, you can control the player using the remote supplied with the receiver (amplifier).

- 1 Connect the player to the VIDEO jack on the receiver (amplifier), and register the IR code of the jack to which this player is connected as "CONTROL A1/CD2."
- 2 Click LIST on the on-screen display using the remote supplied with the receiver (amplifier). The on-screen display changes to the CD player information display.
- 3 Click EXIT to return to the receiver (amplifier) information display.

For details on this function, refer to the instructions supplied with the receiver (amplifier).

Notes

- When the CD player information display does not fit inside the receiver's (amplifier's) on-screen display control panel, adjust the position using the GRAPHIC POSITION function on the receiver (amplifier).
- The CD player information display may return to the receiver (amplifier) information display while playing discs, depending on the connected receiver (amplifier).
- There might be a difference between the remote's sensitivity (PEELING) with the CD player information display and the receiver (amplifier) information display.

Storing Information About CDs (Custom Files)

When you select a CD-TEXT disc

- The CD-TEXT information (disc title, artist name and track titles) is stored as the Disc Memo automatically. If an entry has more than 16 characters, the first 16 characters are stored (see also page 12).

When you replace a disc with a CD-TEXT disc, the CD-TEXT information replaces the Custom File for the old disc automatically.

You cannot change the Disc Memo for a CD-TEXT disc.

- You can group CD-TEXT discs in the same way as normal discs.
- If you connect a second player that can read the CD-TEXT information, the CD-TEXT information is stored as the Disc Memo automatically when you select a CD-TEXT disc in that player. However, if the second player is the CDP-CX250, artist names cannot be stored.

When storing the Disc Memo and Group File information

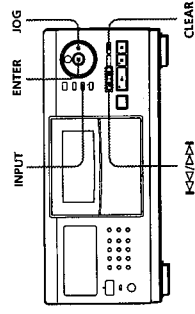
You might find it difficult to input all the track and disc information of 200 discs using the controls on the player or the remote. To make the task easier, you can use an IBM-compatible PC keyboard (see "Storing Custom File information using a keyboard" on page 28).

Labeling Discs (Disc Memo)

You can store the disc title, artist name and track titles of each disc using up to 16 characters for each entry, and have the player display the Disc Memo each time you select the discs/tracks.

You can label discs while the front cover is open

Labeling discs with disc titles

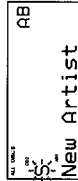


- 1 Turn the JOG dial to select the disc.
When you label a disc with the front cover closed, the disc number of the disc at the playing position appears.
When you label a disc with the front cover open, the disc number at the loading position appears.

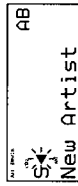
- 2 Press INPUT.
- 3 Turn the JOG dial until "DISC MEMO" appears in the front panel display, then press ENTER. The flashing cursor (4) appears.

- 4 Turn the JOG dial until the character you want appears in the front panel display. The cursor disappears and the first space for the disc title flashes. As you turn the JOG dial clockwise, the characters appear in the following order. Turn the JOG dial counterclockwise to go back to the previous character.

(space) ABCDEFGHIJKLMNOPQRSTU
VWXYZabcdefghijklmnopqrstuvwxyz
0123456789! " # \$ % & ' () * + , - . / : ; <
=> ? @ [\] ^ _ { | } ~



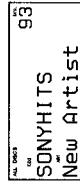
- 5 Press ENTER to select the character. The selected character lights up, and the flashing cursor appears to indicate the next space to be input.



If you have made a mistake
Press CLEAR and begin again by inputting the correct characters.

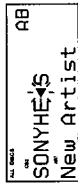
- 6 Repeat Steps 4 and 5 to input more characters. **If you want to input other Disc Memo information (artist name or track titles) of the same disc sequentially**
Press ENTER repeatedly until the cursor goes to the space for the item you want, and you can input the information.

- 7 Press INPUT to store the disc title. The disc title lights up in the front panel display.

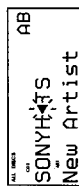


Repeat Steps 1 through 7 to assign disc titles to other discs.

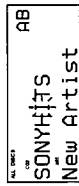
- If you have made a mistake while inputting a character**
To correct a character which has been input
1 Press ← or → until the cursor moves next to the incorrect character.



- 2 Press GROUP/DEL to delete the incorrect character.



- 3 Input the correct character.



- To correct the character currently being input
1 Press GROUP/DEL to delete the incorrect character.
2 Input the correct character.

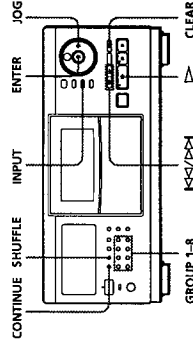
To insert a character between the input characters
Press ← or → until the cursor moves next to the point you want to insert, then input the character.

Erasing the Disc Memo

- 1 Select the disc whose Disc Memo you want to erase.
- 2 Press INPUT.
- 3 Turn the JOG dial (when using the remote, press ↕/4) until the item you want to clear (disc title, artist name or track title) appears in the front panel display, then press ENTER.
- 4 Press CLEAR.
- 5 Press INPUT.

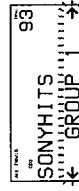
Grouping Discs (Group File)

You might find that too many discs make it hard to find the disc you want. This player has a feature that lets you classify discs into eight groups and label each group with category etc. using up to 16 characters (Group Memo). One disc can be put into only one group. Once you classify discs, you can enjoy Continuous, Shuffle or Repeat Play only within a certain group (Group Play).



Putting discs into groups

- 1 Press CONTINUE or SHUFFLE before you start playing.
- 2 Turn the JOG dial to select the disc which you want to put into a group.
- 3 Press INPUT.
- 4 Turn the JOG dial until "GROUP FILE" appears in the front panel display, then press ENTER. If the disc has not been put into any group, "NOT FILED" appears in the front panel display.
- 5 Turn the JOG dial until the group number you want (e.g., GROUP 1) appears in the front panel display.



- Press ENTER to select the group.
The group file indication lights up in the front panel display and the flashing cursor (◀) appears to indicate the first space for the Group Memo.
- Input the group name (Group Memo) following Steps 4 through 6 in "Labeling discs with disc titles" on page 23.
- Press INPUT to store the Group Memo.

Erasing the Group Memo

- Follow Steps 1 through 4 in "Putting discs into groups" to select the Group Memo you want to erase.
- Press CLEAR.
- Press INPUT.

Playing discs in a group (Group Play)

You can enjoy Continuous or Shuffle Play within a group.

- Press CONTINUE or SHUFFLE to select the play mode you want before you start playing.

When you select	The player plays
ALL DISCS Continuous Play	All tracks on all discs in the group consecutively
1 DISC Continuous Play	All tracks on the specified disc in the group consecutively
ALL DISCS Shuffle Play	All tracks on all discs in the group in random order
1 DISC Shuffle Play	All tracks on the specified disc in the group in random order

- Press one of the GROUP 1-8 buttons to select the group and press ▶.

Group Play starts from the disc which is the most upward number and located closest to the playing position. If the disc at the playing position is put into the selected group, the play starts from that disc.

You can specify the first disc to play when starting Group Play
After selecting the group, turn the JOG dial to select the disc, then press ENTER.

You can start Group Play using the remote
Before you start playing, press GROUP/DEL the number button of the group you want to play, then ENTER.

Note
If "NO ENTRY" appears in the front panel display, no disc has been put into the selected group.

Deleting discs from a group

- To delete a disc from a group
 - Follow Steps 1 through 4 in "Putting discs into groups" on page 16 to select the disc.
 - Turn the JOG dial (when using the remote, press repeatedly) until "NOT FILED" appears in the front panel display, then press ENTER.
 - Press INPUT.
- To delete all discs from a group at once

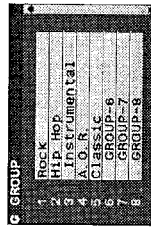
Press one of the GROUP 1-8 buttons you want to clear, then press CLEAR for more than one second.

Checking the Group File information using the on-screen display

You can check the Group Memos and disc titles stored in each group.

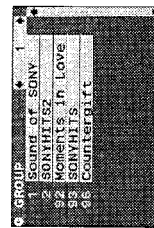
Checking the Group Memos

Press GROUP/DEL.
The on-screen display shows all the Group Memos.



Checking the disc titles in each group

After pressing GROUP/DEL, press the number button of the group you want.

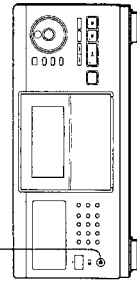


Storing Custom File Information Using a Keyboard

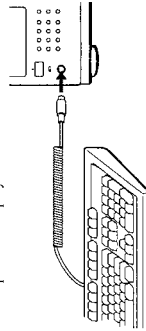
You can store the Disc Memo and Group File for one disc sequentially using an IBM-compatible PC keyboard* for USA (not supplied).

- Power consumption must be 120 mA or less.

Keyboard jack



- Connect a keyboard to the keyboard jack on the front panel of the player.



- After selecting the disc you want on the player, press the Enter key.
- Press the cursor keys (↑/↓) to select the item you want (disc title, artist name, group file or track title).

- When you select ARTIST NAME**
"New Artist" appears in the on-screen display. Press the ENTER key and go to Step 4.
If the same artist name has been assigned to other discs, press the cursor keys (←/→) repeatedly until the artist name you want appears in the on-screen display, then press the ENTER key. In this case, skip Step 4.
- When you select GROUP FILE**
Press the cursor keys (←/→) until the group number you want appears in the on-screen display, then press the ENTER key.



- Input the characters you want, then press the ENTER key.
To input the other information, repeat Steps 3 and 4.

- Press the Esc key to store the information.

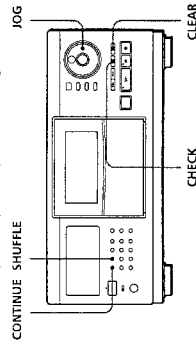
You can delete all characters of selected item
While holding down the Shift key, press the Delete key.

Notes

- If the cursor keys do not work correctly and you cannot complete the task using the key, and disconnect the keyboard then reconnect it to the player.
- If the keyboard is not the USA model, the characters may be input differently from those on the keys.

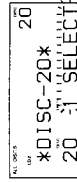
Storing Specific Tracks (Delete File)

You can delete unwanted tracks and store only the tracks you want. When you select the disc containing a Delete File, you can play only the remaining tracks.

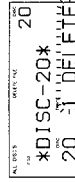


- Press CONTINUE or SHUFFLE before you start playing.
- Turn the JOG dial to select the disc.

- Press CHECK repeatedly until the track you want to delete appears in the front panel display.



- Press CLEAR.
"DELETE FILE" appears, and "DELETE" flashes in the front panel display.



If you want to recover the track, press CLEAR again.

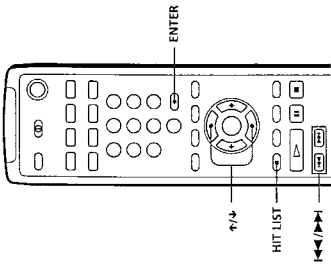
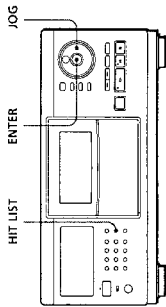
- 5 Repeat Steps 3 and 4 to delete more tracks.

You can recover all the tracks you have deleted
Press CHECK, then hold down CLEAR until "ALL SELECT" appears in the front panel display.

Note
The deleted tracks are skipped even in the Shuffle or Program Play mode (when the whole disc containing a Delete File is programmed as one step).

Storing Your Favorite Tracks (Hit List)

You can store the tracks you play frequently and select those tracks immediately by checking the track numbers or titles (see page 24) in the Hit List. You can put up to 50 tracks in the Hit List.



Putting tracks into the Hit List

Press HIT LIST while playing your favorite track. "LIST IN" appears in the front panel display.

Playing tracks in the Hit List

- 1 Press HIT LIST before you start playing. "HIT LIST" appears in the front panel display.
- 2 Turn the JOG dial or press <<4/>>4 until the track you want appears in the front panel display. When using the remote, press 4/4.
- 3 Press ENTER to start playing the track.

You can check the tracks in the Hit List using the on-screen display

When you press the HIT LIST button, the on-screen display shows the tracks in the Hit List.

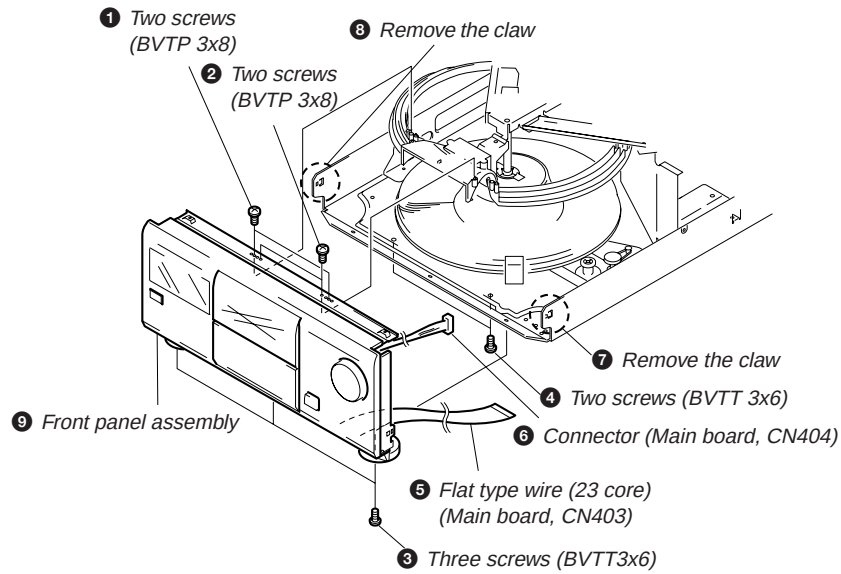
HIT LIST	1	2	3	4	5	6	7	8	9	10
1	0	147	1	1	1	1	1	1	1	1
2	0	147	1	1	1	1	1	1	1	1
3	0	147	1	1	1	1	1	1	1	1
4	0	147	1	1	1	1	1	1	1	1
5	0	147	1	1	1	1	1	1	1	1
6	0	147	1	1	1	1	1	1	1	1
7	0	147	1	1	1	1	1	1	1	1
8	0	147	1	1	1	1	1	1	1	1
9	0	147	1	1	1	1	1	1	1	1
10	0	147	1	1	1	1	1	1	1	1

Notes

- You cannot arrange the order of the tracks in the Hit List.
- The track you select in Step 2 will be listed as the first track in the Hit List.
- If you input the 51st track into the Hit List, the 50th track will be replaced.

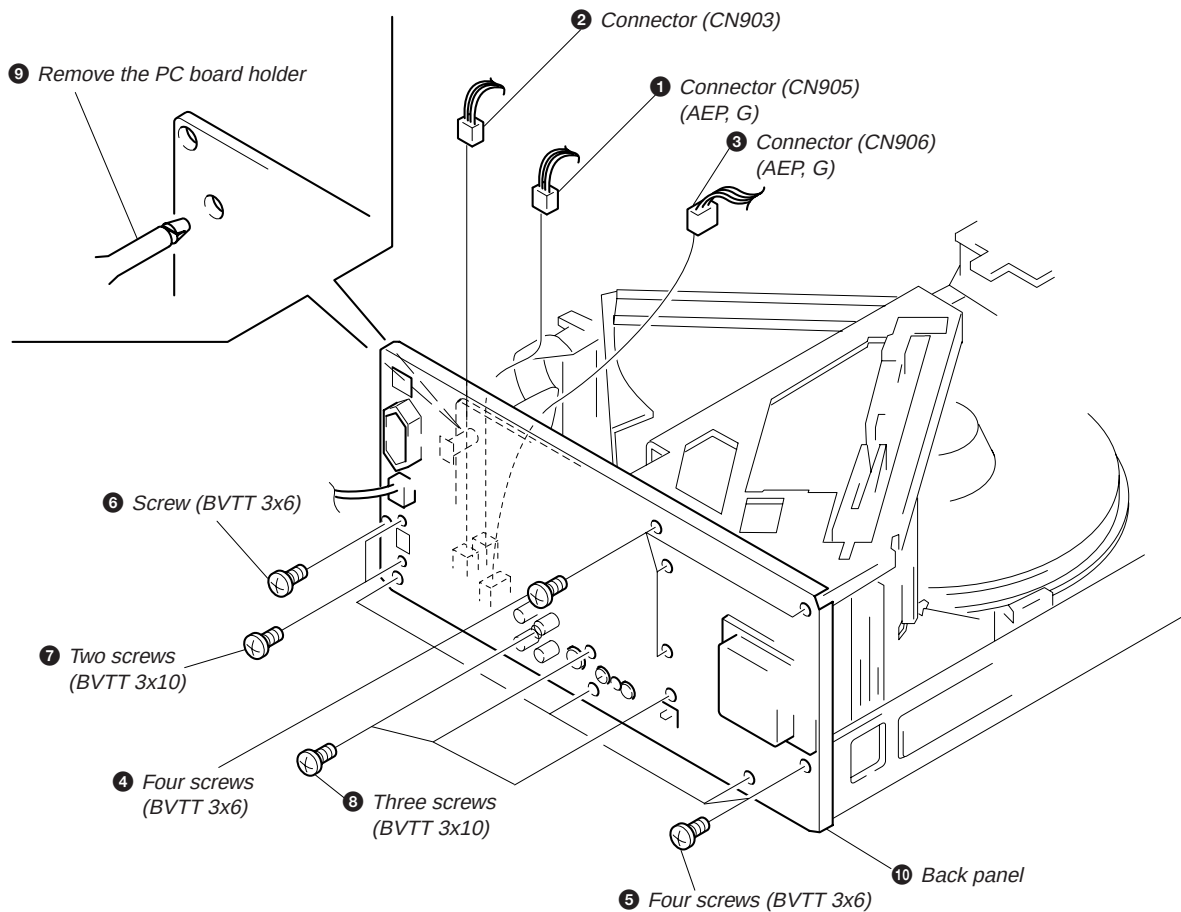
SECTION 3 DISASSEMBLY

3-1. FRONT PANEL ASSEMBLY

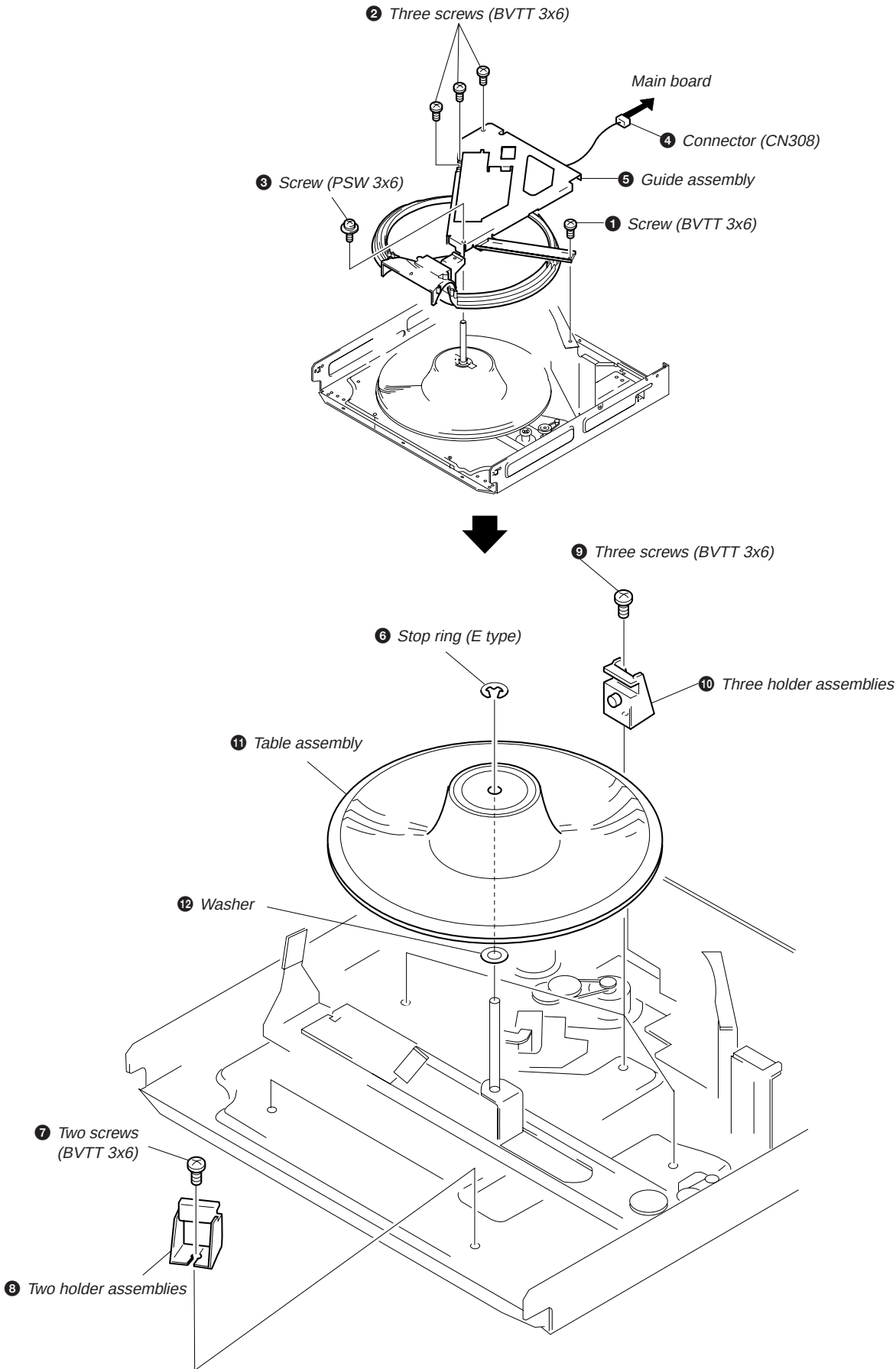


3-2. BACK PANEL ASSEMBLY

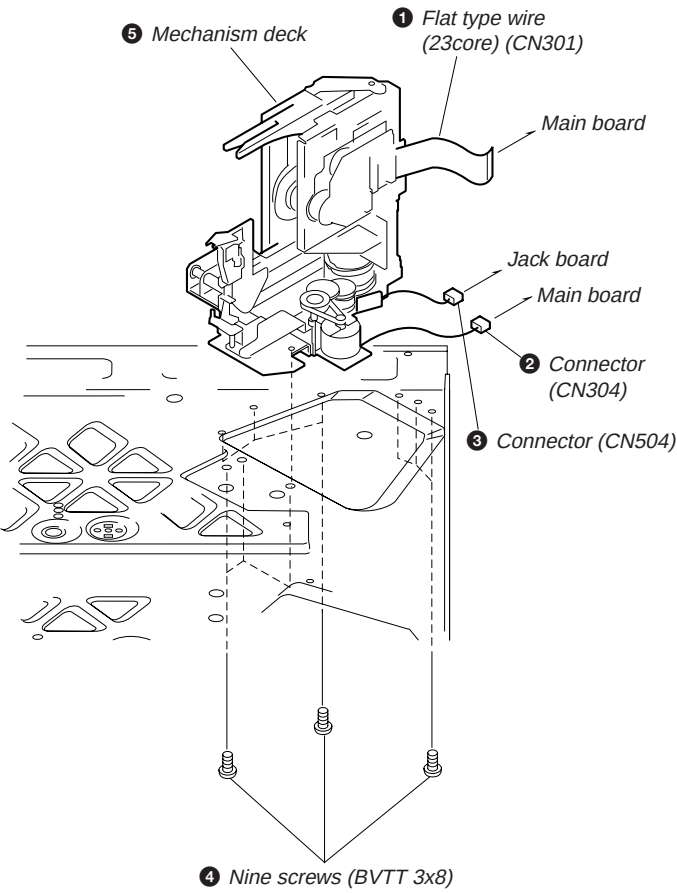
Note Abbreviation
G : German model



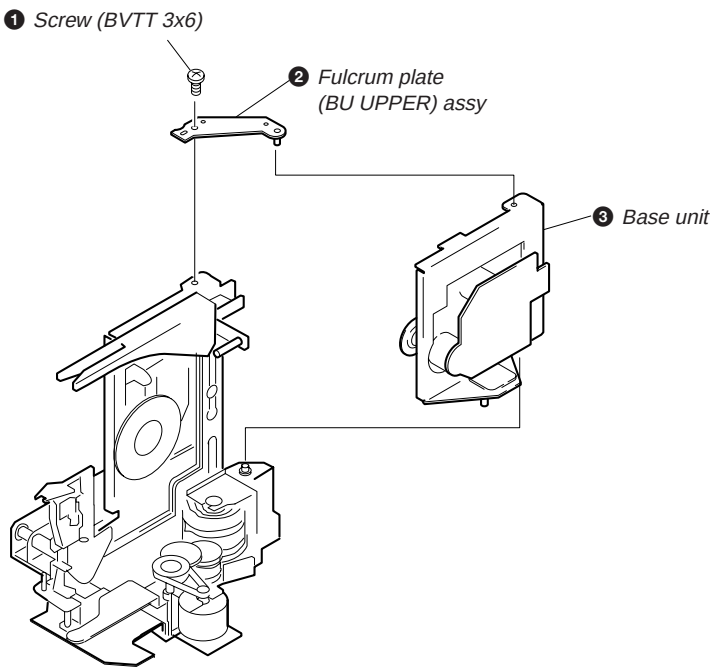
3-3. TABLE ASSEMBLY



3-4. MECHANISM DECK



3-5. BASE UNIT



SECTION 4 TEST MODE

4-1. Display Check Mode

With the power turned off (standby state), press the POWER button while pressing the **⏸** (pause) button.

All FL segments and grids light up together with the **▶** (play), **⏸** (pause), and standby LEDs.

At the same time, the GROUP LEDs are lights up simultaneously.

Note: To exit this mode, press the POWER button.

4-2. ADJ Mode

1. Turn ON the power of the unit, set disc to disc table, and perform chucking.
2. Disconnect the power supply plug from the outlet.
3. To set ADJ mode, connect the test point (ADJ) of the MAIN board to Ground, and connect the power supply plug to the outlet.

The power will turn on automatically, and the first track will be played. In this mode, table rotation and loading operations are not performed because it is taken that the disc has already been chucked.

Note: The same operations are also performed in the following when the test point (ADJ) is connected to Ground after turning on the power.

- Direct search (movement of sledding motor) is not performed during accessing
- Ignored even when GFS becomes L
- Ignored even when the Q data cannot be read
- Focus gain does not decrease
- Spindle gain does not decrease
- Servo related settings can be set manually and checked (Refer to ADJ Mode Special Functions Table)

ADJ Mode Special Functions Table

(The buttons shown with () function by using the supplied remote commander only)

Button	Function
CONTINUE	Servo average display Displays VC, FE, RF, TE and traverse in hexadecimal numbers
SHUFFLE	Focus bias display Each time this is pressed, the focus bias is switched between 1 and 2 (1) Bias actually set Optimum bias Minimum jitter (2) U:Upper aliasing bias L:Lower aliasing bias
PROGRAM	Auto gain display Displays focus, tracking, sledding in hexadecimal numbers
GROUP 1 (1)	Increases the focus bias in 8 steps.
GROUP 2 (2)	Sets the focus bias in the middle of aliasing.
GROUP 3 (3)	Turns off the tracking and sledding servo
GROUP 4 (4)	Returns the auto gain to the initial value (30)
GROUP 5 (5)	Turns off the focus servo
GROUP 6 (6)	Decreases the focus bias in 8 steps.
GROUP 7 (7)	Re-adjusts the focus bias
GROUP 8 (8)	Turns on the tracking and sledding servo
(9)	Switches the focus servo gain between normal and down FG. norm: normal, FG. down: down
(10/0)	Sets the focus bias to 0 (no bias) Next, displays the jitter measured at the focus bias set
CHECK	S-curve observation mode
CLEAR	Automatic eccentric measurement The results of measurement is displayed in μm directly.

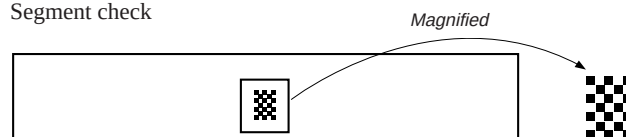
4-3. Key and Display Check Mode

To set this mode, connect the test point (AFADJ) on the MAIN board to Ground, and connect the power supply plug to the outlet.

- All FL segments and grids will light up. (All lit check)
When a button is pressed, the types of buttons pressed until then will be displayed on the left side and the number of the buttons will be displayed on the right side. However, these will not be displayed for the following special buttons.
- (stop) button: FL segment check
(Refer to FL Tube Check Patterns)
- ⏸(pause) button: FL grid check (Refer to FL Tube Check Patterns)
The pause LED also lights up simultaneously.
- ▶(play) button: All FL segment and grid will light up.
The play LED also lights up simultaneously.

FL Tube Check Patterns

Segment check



Grid check



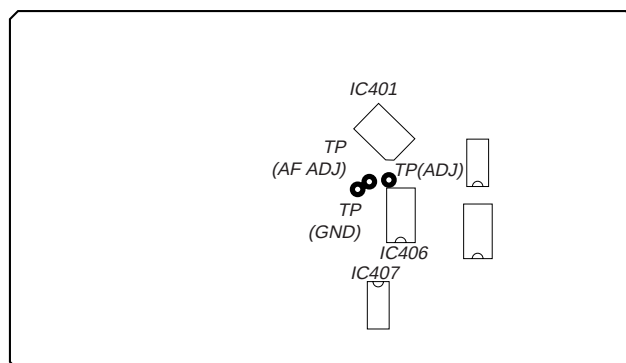
- When the jog dial is rotated to the right, the GROUP LEDs light up in the order of 1→2..8→1.
- When the jog dial is rotated to the left, the GROUP LEDs light up in the order of 8→7..1→8.

- The standby LED lights up when the door switch is shut.

• Abbreviation

FL: Fluorescent Indicator Tube

[MAIN BOARD] — Component Side —

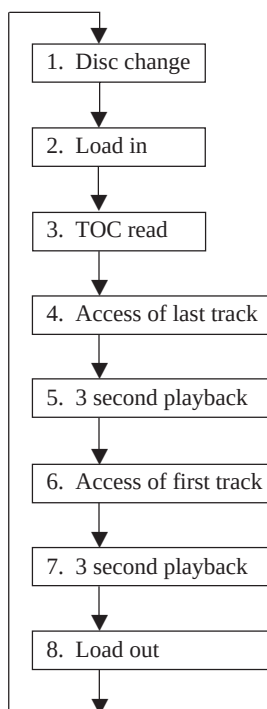


4-4. Aging Mode

Aging Mode

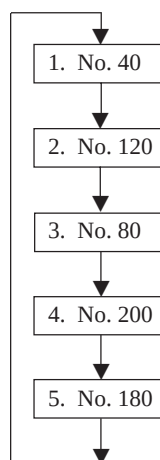
- Mode which repeatedly changes and plays back discs automatically in the unit.
 - It will repeat aging as long as no errors occur.
 - If an error occurs during aging, it will stop all servos, motors, etc. instantaneously, display the error number, and stop operations. However, the stopping conditions differ according to whether the unit is equipped with the “self-protection function during errors” described later.
- The function serves to maintain the state of the unit when errors occur.

Sequence of Aging Mode



Order of Disc Change

(1 cycle takes 3 minutes)



Special Aging Mode Functions

The aging mode is provided with the following convenient functions

- Disc setting mode (*1)
- Selection of presence of protection function during error (*2)
- Count function of aging cycle (*3)

*1 Disc setting mode:

5 discs are set before setting the aging mode. This mode makes the setting of these discs more easy.

*2 Self protection function during errors:

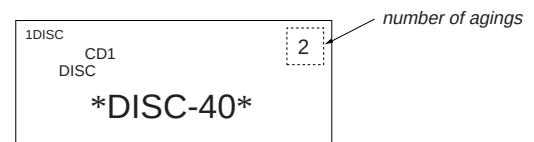
Function which voluntarily corrects errors which occur during normal operations by retries.

If this function is not provided, all operations will be stopped without retiring. It is suitable for checking errors with low reproducibility.

If this function is provided, and errors can be corrected by retries, aging will be continued without stopping.

*3 Aging cycle count function:

Functions which displays the number of agings carried out on the Fluorescent indicator tube in numbers. One aging cycle consists of five discs.



Aging Method

1. Turn ON the power of the unit. Open the front cover.
2. Press the AGING START button of the remote commander for aging mode (J-2501-123-A).
3. When the disc set mode is set, the ► and ■ LEDs blink.
4. Rotate the JOG dial. The slits (No. 40, 80, 120, 160, 200) for setting the discs will come forward. Insert the discs into these slits. Do not set the discs in other slits.
5. Set whether the self-protection function during errors is equipped with the unit. Press the REPEAT button. If “REPEAT” is displayed on the Fluorescent indicator tube, it means the function is provided. If “REPEAT” is not displayed, it means the function is not provided.
6. Press the ► button.
7. The ► LED blinks, the aging mode is set, and aging is started.
8. The aging cycle lasts 3 minutes. If errors occur during aging, the error number will be displayed on the Fluorescent indicator tube. (Refer to the following table for the details of the errors.)
9. Aging will be repeated as long as no errors occur.
10. After each aging cycle, the number displayed on the Fluorescent indicator tube will increase.
11. To end aging, press the POWER button

Error Display

120 Err01

Disc number Error code

Error code

Code number	Name	Contents
Err 01	DISC sensor check 1	No disc in the specified slit
Err 02	DISC sensor check 2	Disc in other slits
Err 03	Table operation check 1	Table motor current over
Err 04	Table operation check 2	No table sensor input
Err 05	Loading operation check 1	Load in timeover
Err 06	Loading operation check 2	Load out timeover
Err *1	BU related check 1	Access timeover
Err *2	BU related check 2	High speed search NG
Err *3	BU related check 3	Q data read error
Err *4	BU related check 4	BU operation (from focus search to until signal can be read) timeover
Err *5	BU related check 5	GFS monitor error
Err *6	BU related check 6	Focus cannot be imposed by focus search
Err *7	BU related check 7	Auto focus bias adjustment cannot be performed

The * numbers mean the following according to the state of the unit during aging

2 : From chucking to end of TOC read

3 : From end of TOC read to end of last track playback

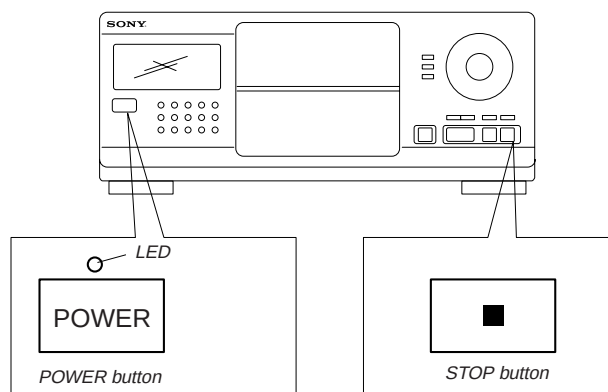
4 : From end of last track playback to end of first track playback

SECTION 5 ADJUSTMENTS

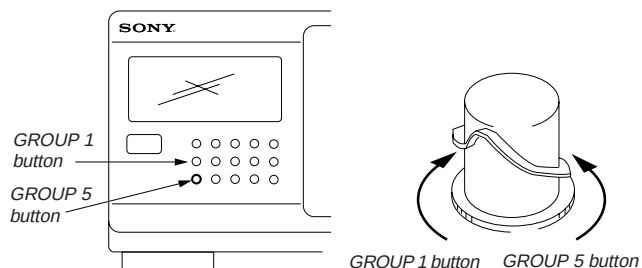
5-1. MECHANICAL ADJUSTMENT

Perform the following steps before carrying out adjustments.

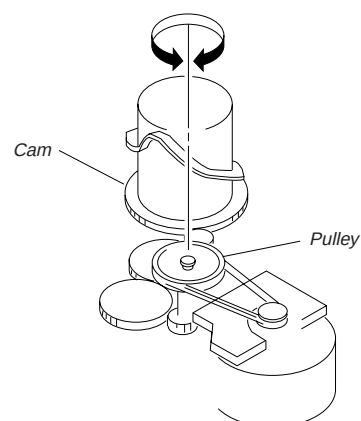
1. Turn ON the power of the unit, set disc to disc table No. 92, and perform chucking.
2. Turn OFF the power.
3. Remove the case.
4. While pressing the STOP button, turn ON the POWER button. The test mode is set.
5. The POWER button LED starts blinking. (Test mode)



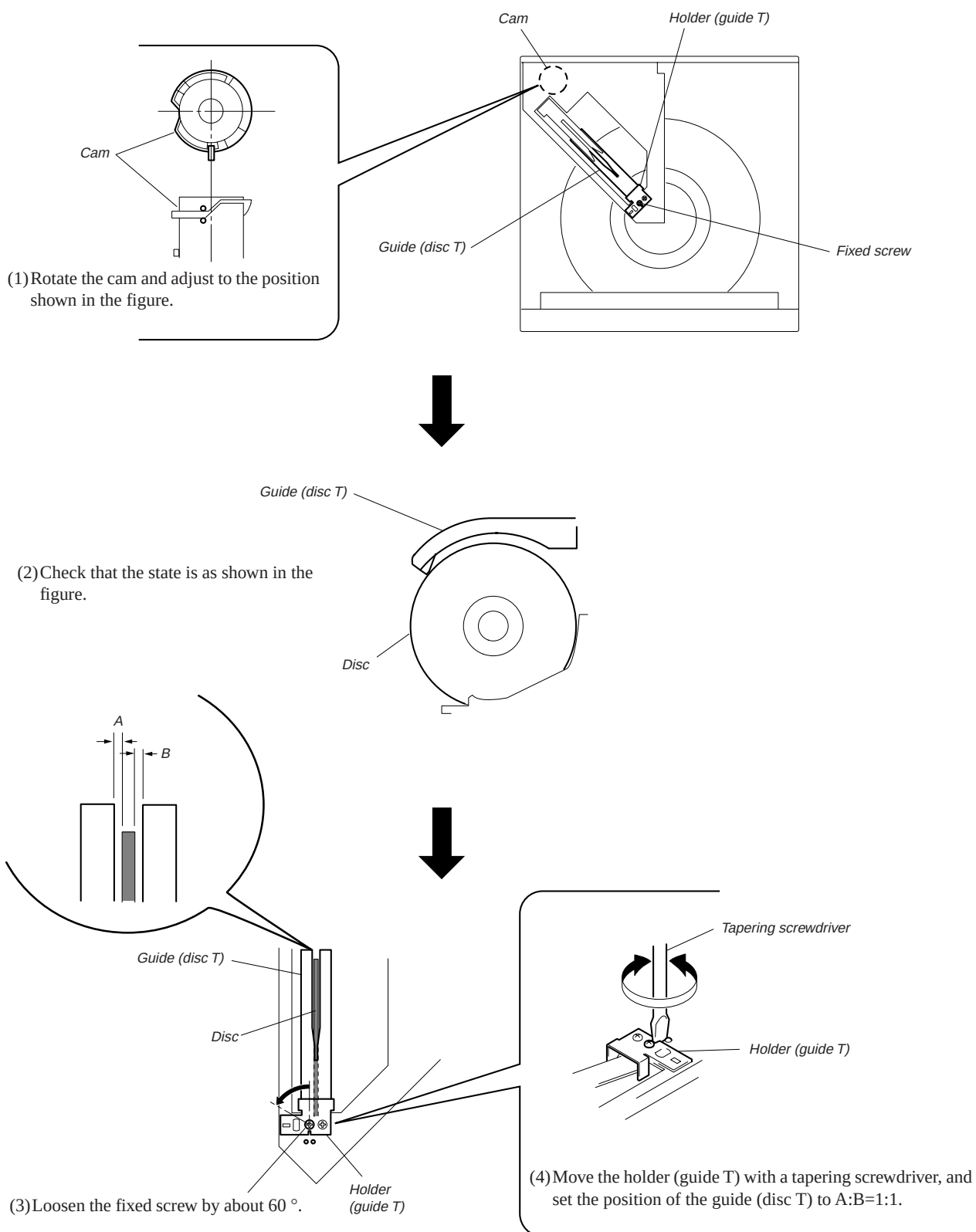
NOTE 1: The cam will start rotating when the GROUP 1 or GROUP 5 button is pressed continuously in the test mode.



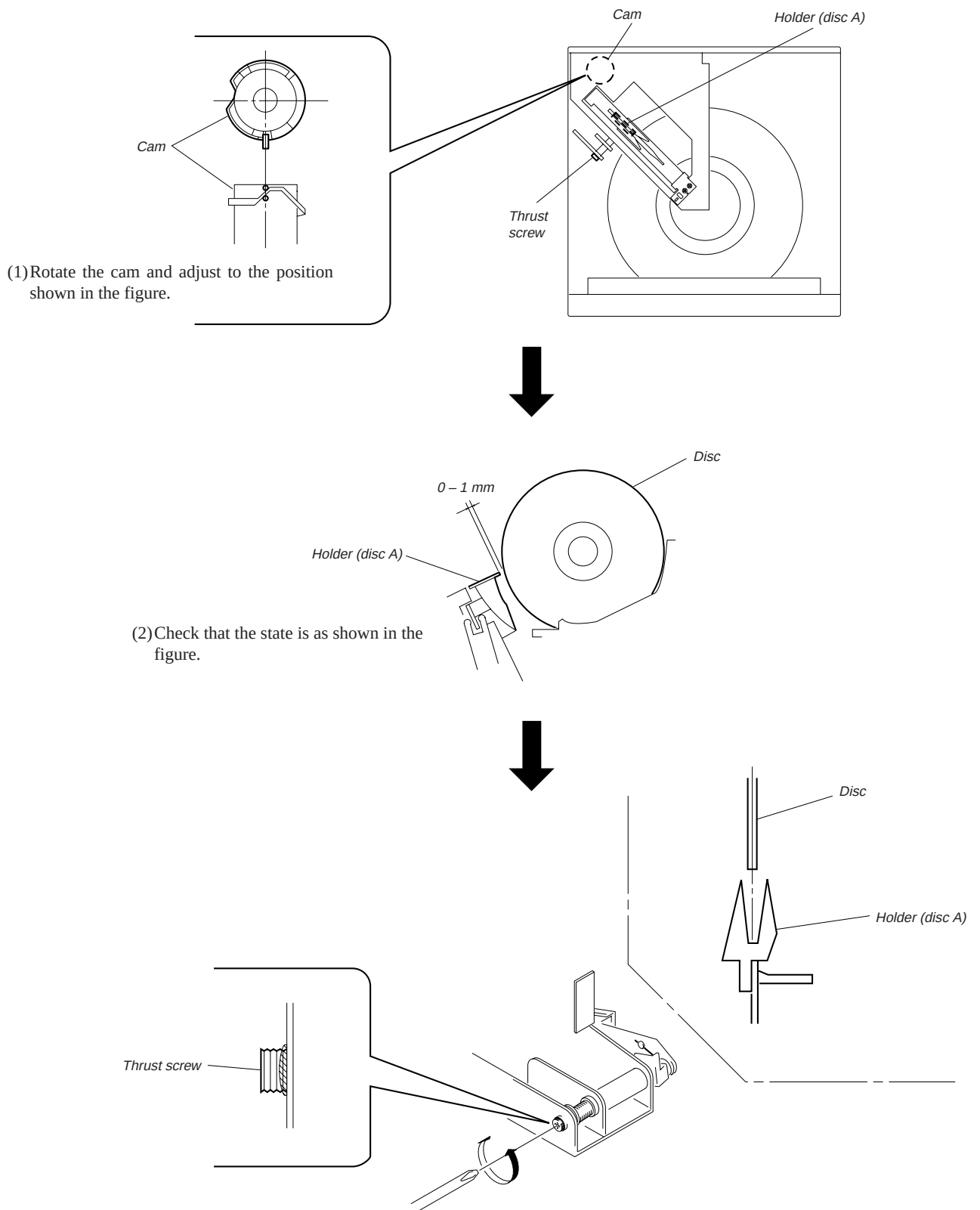
NOTE 2: If the power cannot be supplied, the cam can be rotated by rotating the pulley with your finger.



GUIDE (DISC T) ALIGNMENT



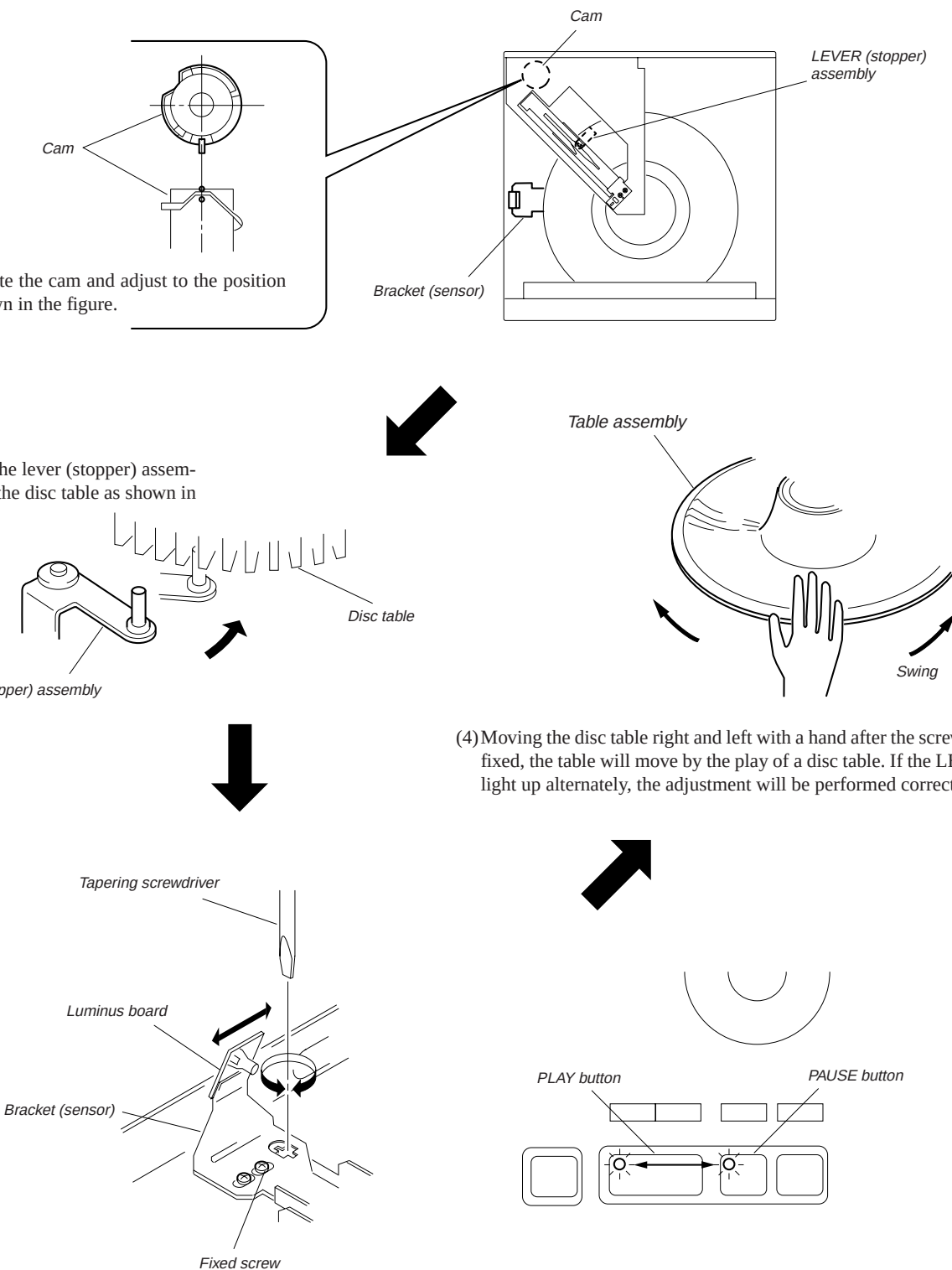
HOLDER (DISC A) ALIGNMENT



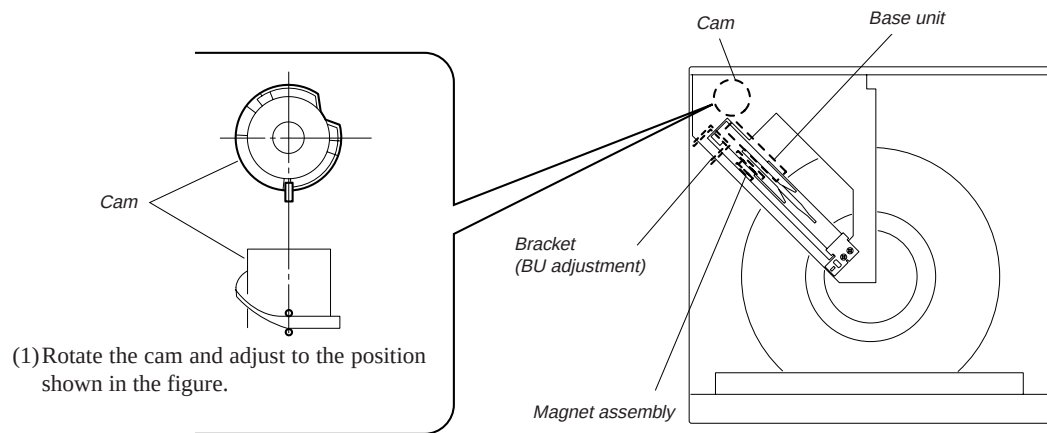
SENSOR ALIGNMENT

Perform this adjustment after the “holder (disc A) adjustment”.

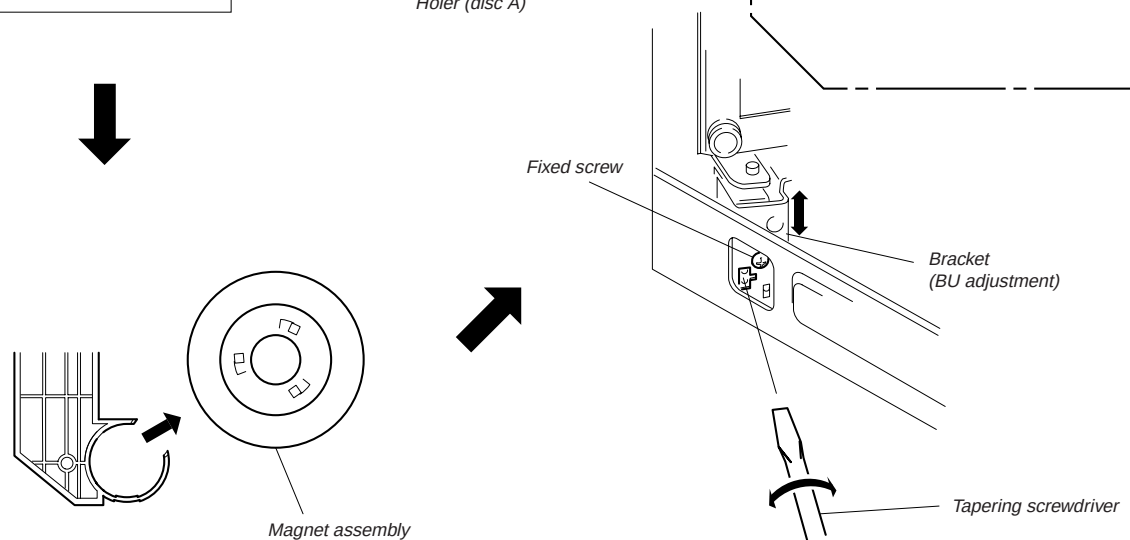
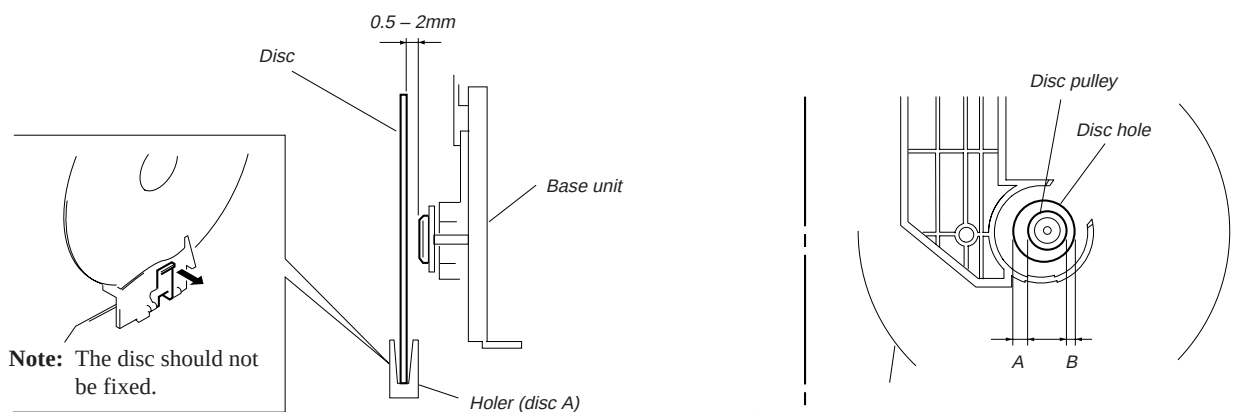
If the disc table swings to the left and right just before the disc is chucked, perform the following adjustment.

- 
- (1) Rotate the cam and adjust to the position shown in the figure.
- (2) Check that the lever (stopper) assembly secures the disc table as shown in the figure.
- (3) Loosen the fixed screw by 60° to 90°, and use a tapering screwdriver to adjust the screw as shown in the figure. Move the bracket (sensor) with the tapering screwdriver little by little, and fix the fixed screw at where the play button's LED (green) is switched to the pause button's LED (orange) (or its reverse).
- (4) Moving the disc table right and left with a hand after the screw is fixed, the table will move by the play of a disc table. If the LEDs light up alternately, the adjustment will be performed correctly.

PULLEY AND DISC CENTER HOLE ALIGNMENT



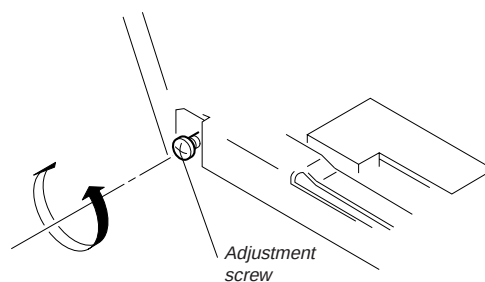
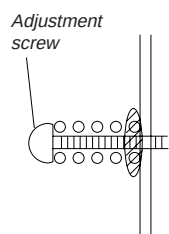
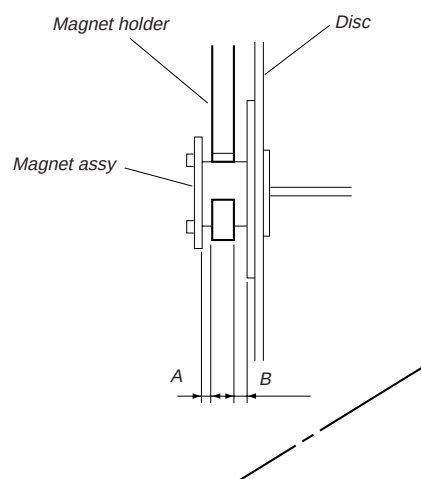
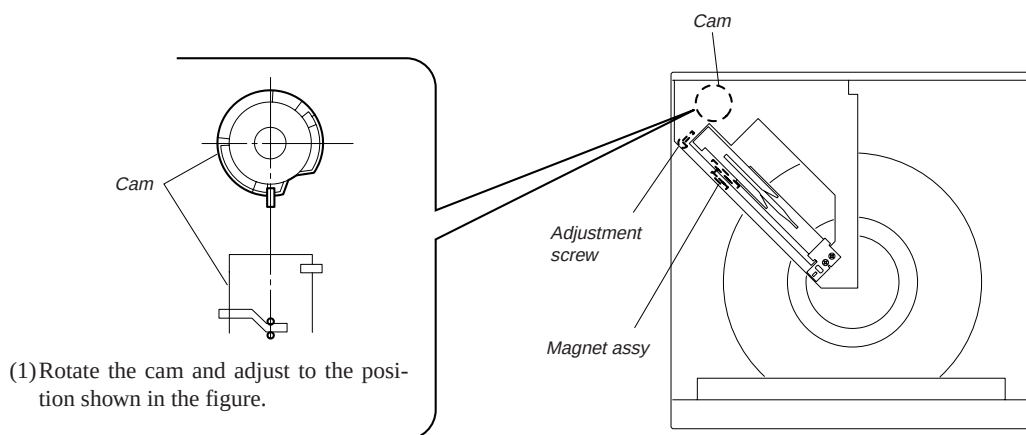
(2) Check that the state is as shown in the figure.



(3) Remove the Magnet assembly.

Loosen the fixed screw by 60° to 90° , and move and adjust the bracket (BU adjustment) up and down using a tapering screwdriver so that the positions of the disc hole and disc pulley become $A=B$ or between $A:B=2:1$ and $1:2$.

MAGNET ASSY ALIGNMENT

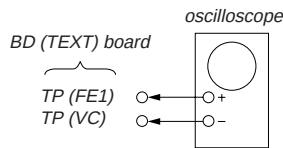


5-2. ELECTRICAL BLOCK CHECKING

Note:

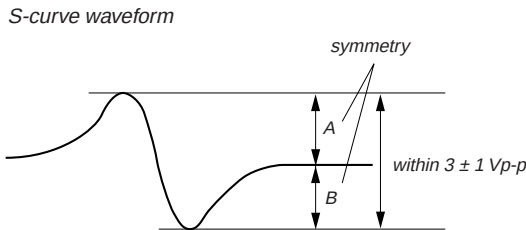
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than $10\text{M}\Omega$ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S-Curve Check



Procedure :

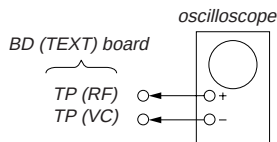
1. Connect oscilloscope to test point TP (FE1) on BD (TEXT) board.
2. Connect test point TP (ADJ) on MAIN board to ground with lead wire.
3. Turn Power switch on to set the ADJ mode.
4. Put disc (YEDS-18) in and playback.
Press the CHECK button.
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within $3 \pm 1 \text{ Vp-p}$.



6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check

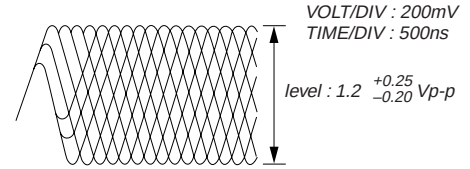


Procedure :

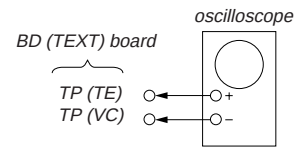
1. Connect oscilloscope to test point TP (RF) on BD (TEXT) board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note: A clear RF signal waveform means that the shape “ $\diamond$ ” can be clearly distinguished at the center of the waveform.

RF signal waveform



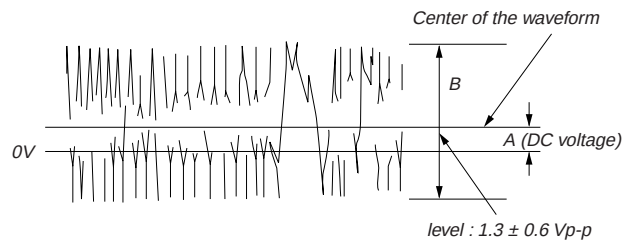
E-F Balance Check



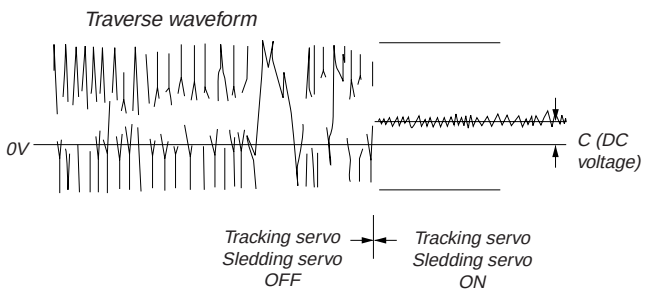
Procedure :

1. Connect oscilloscope to test point TP (TE) on BD (TEXT) board.
2. Connect the test point TP (ADJ) on MAIN board to the ground with a lead wire.
3. Turn the Power switch on to set the ADJ mode.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the “GROUP 3” button. (The tracking servo and the sledging servo are turned OFF.)
6. Check the level B of the oscilloscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
Confirm the following :
 $A/B \times 100 = \text{less than } \pm 22\%$

Traverse waveform



7. Press the “GROUP 8” button. (The tracking servo and sledging servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

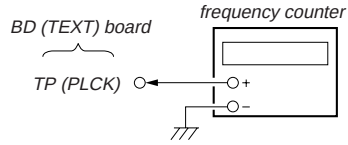


8. Disconnect the lead wire of TP (ADJ) connected in step 1.

RF PLL Free-run Frequency Check

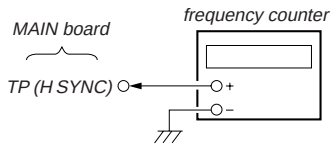
Procedure :

1. Connect frequency counter to test point TP (PLCK) with lead wire.



2. Turn Power switch on.
3. Put the disc (YEDS-18) in to play the number five track.
Confirm that reading on frequency counter is 4.3218MHz.

H Sync Adjustment

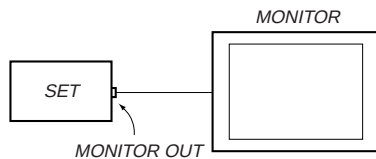


Procedure :

1. Connect the test points TP (TEST) and TP (GND) on MAIN board with a lead wire. And Connect the frequency counter to the test point TP (H SYNC).
2. Turn power switch on.
3. Adjust C506 so that the reading of frequency counter becomes the adjustment value.
4. Disconnect the lead wire connected in step 1.

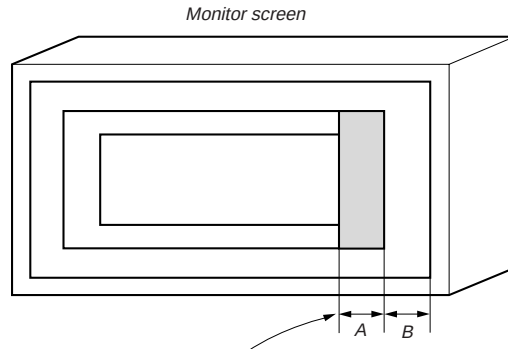
Adjustment value : NTSC : 3.579545 MHz $\pm$ 10Hz
PAL : 4.433618 MHz $\pm$ 10Hz

OSD Screen Width (V SYNC) Adjustment



Procedure :

1. Press the POWER button while pressing the ■ (STOP) button.
The screen display is the screen for adjusting the width of the OSD screen.
The position of the OSD screen set by the user will be cleared to the center of the screen, which is the setting at shipment.
2. Adjust C510 so that the space on the right of the screen (width B) is the same width as the orange frame on the right of the adjustment screen (width A). (This adjustment takes into consideration extra space for deviations caused by the monitors.)
3. Press the POWER button after completing the adjustment.



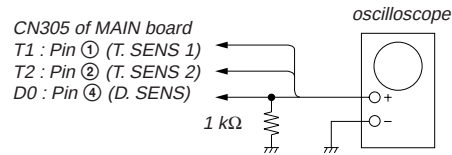
Adjust C510 so that width of the Orange frame (A) at the right of the screen is the same as the width of space (B) of the monitor screen.

Disc Sensor Adjustment

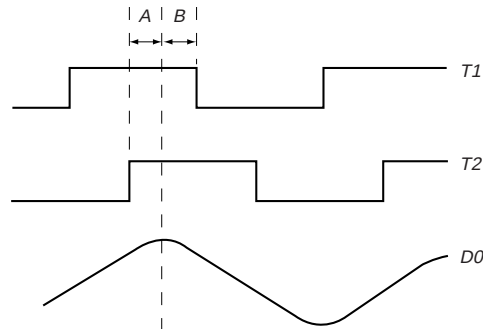
Perform this adjustment after completing all adjustments of the mechanism section.

If not performed accurately, the presence of the disc may not be detected properly.

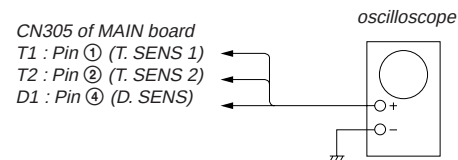
Connection 1:



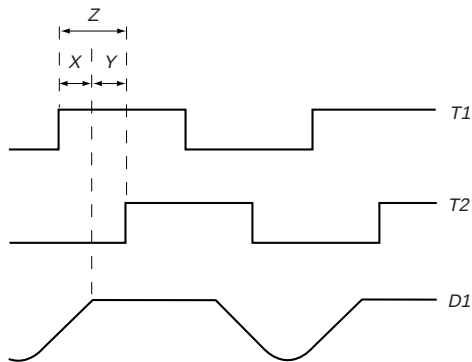
Waveform 1:



Connection 2:

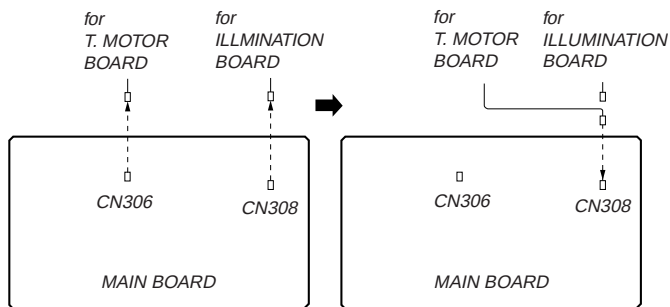


Waveform 2

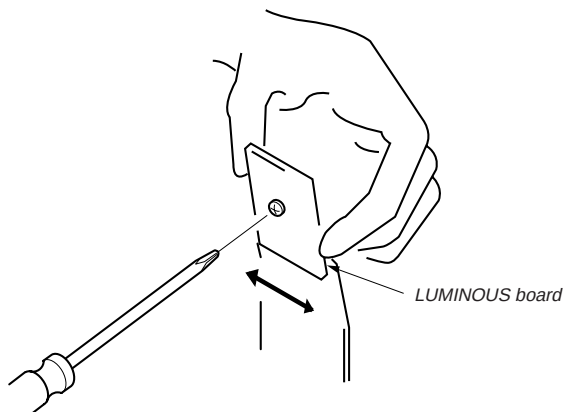


Procedure:

1. Connect the oscilloscope to Pins ①, ②, and ④ of CN305 of the MAIN board. Also connect a 1 k Ω resistor to Pin ④ at the same time. (Connection 1)
2. Disconnect the CN308 (2P) and CN306 (2P) cables of the MAIN board. Connect the cables connected to CN306 (connected to the T. MOTOR board) to CN308.

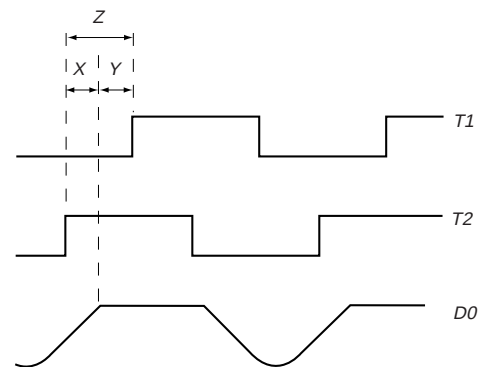


3. Open the front cover. (If closed, malfunctions by incorrect operations may result.)
4. Check that no discs are loaded in the unit, and press the POWER button to turn ON the power.
5. The rotary table will continue rotating in the clockwise direction.
6. Observe the waveform at that time on the oscilloscope.
7. Loosen the screw securing the LUMINOUS board slightly.
8. Slide the LUMINOUS board to the left and right so that the peak of the D0 waveform is at the center between the descending point of the T1 waveform and ascending point of the T2 waveform. (Waveform 1) After adjusting, apply locking compound.



9. Disconnect the resistor connected to Pin ④ of CN305 of the MAIN board. (Connection 2)
10. Observe the waveform on the oscilloscope. (Waveform 2)
11. Adjust RV401 of the MAIN board so that the waveform on the oscilloscope satisfies the following adjustment value 1.
12. Connect the connectors disconnected in Step 2 at their original positions.
13. Close the front cover, and rotate the JOG dial in the counterclockwise direction continuously so that the rotary table rotates continuously in the counterclockwise direction.
14. Observe the waveform on the oscilloscope and confirm that it satisfies the adjustment value 2 (waveform 3). If it does not, adjust RV401 of the MAIN board.

Waveform 3:



15. After the adjustment, load a disc only in slit 1, close the front cover, and press the POWER button to turn off the power.
16. Press the POWER button while pressing the ENTER button to turn on the power.
17. If the rotary table makes one round, and "YES" is displayed on the fluorescent indicator tube after it stops, it means that the adjustment has been performed properly.

Adjustment value 1:

At the shoulder part of waveform D1, T1 becomes H and T2 becomes L, and at the same time, the Y width must not be smaller than 1/4 of the Z width.

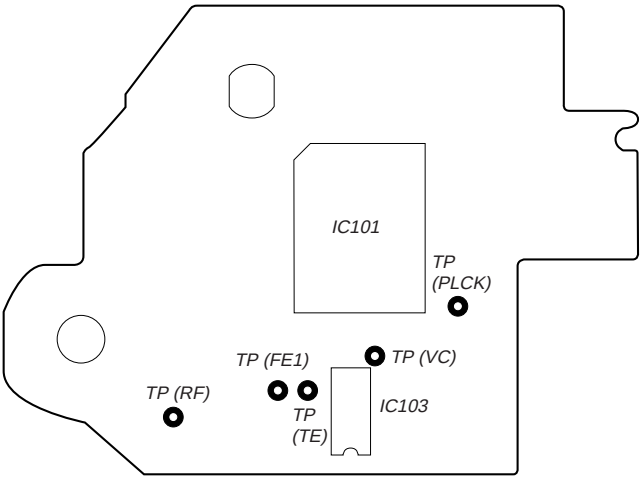
In order to satisfy this value more easily, adjust so that X=Y approximately and observe the deviation of the waveform.

Adjustment value 2:

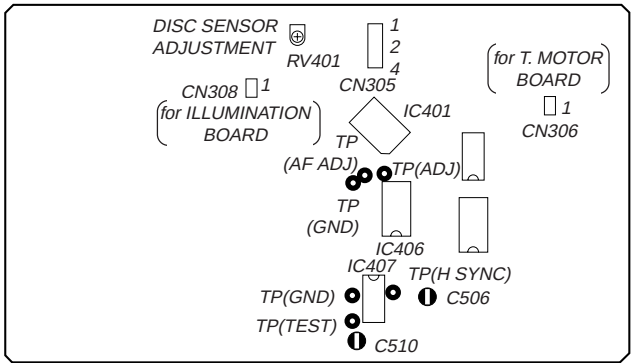
At the shoulder part of waveform D1, T1 becomes H and T2 becomes L, and at the same time, the Y width must not be smaller than 1/4 of the Z width.

Adjustment Location :

[BD (TEXT) BOARD] — Side B —

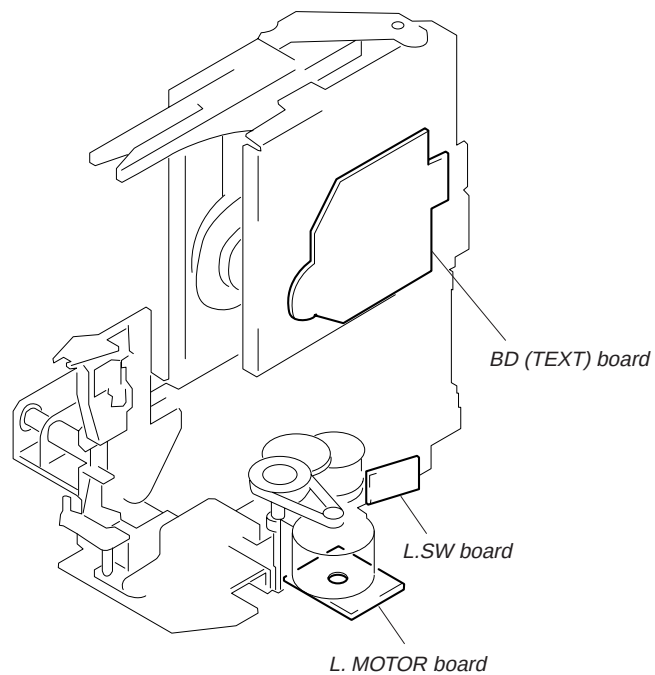
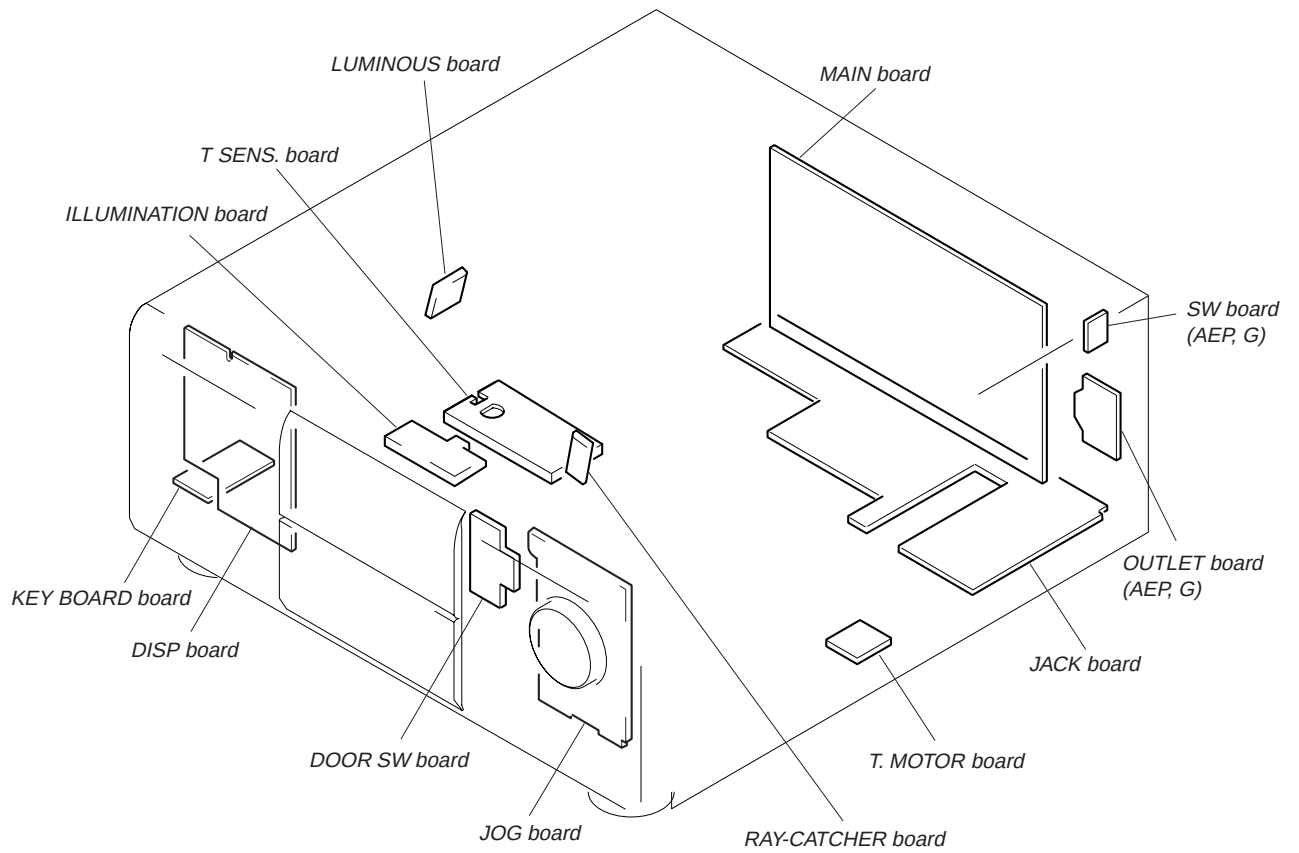


[MAIN BOARD] — Component Side —



SECTION 6 DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



6-2. IC PIN FUNCTIONS

• IC101 DIGITAL SERVO, DIGITAL SIGNAL PROCESSOR (CXD2545Q)

Pin No.	Pin Name	I/O	Function
1	SRON	O	Sled drive output (Open)
2	SRDR	O	Sled drive output
3	SFON	O	Sled drive output (Open)
4	TFDR	O	Tracking drive output
5	TRON	O	Tracking drive output (Open)
6	TRDR	O	Tracking drive output
7	TFON	O	Tracking drive output (Open)
8	FFDR	O	Focus drive output
9	FRON	O	Focus drive output (Open)
10	FRDR	O	Focus drive output
11	FFON	O	Focus drive output (Open)
12	VCOO	O	VCO output for analog EFM PLL (Open)
13	VCOI	I	VCO input from analog EFM PLL (Connected to Ground)
14	TEST	I	TEST pin connected normally to Ground (Connected to Ground)
15	DVss	–	Digital Ground
16	TES2	I	TEST pin connected normally to Ground
17	TES3	I	TEST pin connected normally to Ground
18	PDO	O	Charge-pump output for analog EFM PLL (Open)
19	VPCO	O	Charge-pump output for variable pitch PLL (Open)
20	VCKI	I	Clock input from variable pitch external VCO (Connected to Ground)
21	AVD2	–	Analog power supply
22	IGEN	I	Power supply pin for operational amplifiers
23	AVS2	–	Analog Ground
24	ADIO	I	(Open)
25	RFC	O	(Open)
26	RFDC	I	RF signal input
27	TE	I	Tracking error signal input
28	SE	I	Sled error signal input
29	FE	I	Focus error signal input
30	VC	I	Center voltage input pin
31	FILO	O	Filter output for master PLL
32	FILI	I	Filter input for master PLL
33	PCO	O	Charge-pump output for master PLL
34	CLTV	I	Control voltage input for master VCO
35	AVS1	–	Analog Ground
36	RFAC	I	EFM signal input
37	BIAS	I	Asymmetry circuit constant current input
38	ASYI	I	Asymmetry compare voltage input
39	ASYO	O	EFM full swing output
40	AVD1	–	Analog power supply

• Abbreviation

EFM: Eight to Fourteen Modulation

PLL: Phase Locked Loop

Pin No.	Pin Name	I/O	Function
41	DVDD	–	Digital power supply
42	ASYE	I	Asymmetry circuit ON/OFF (Connected to +5V)
43	PSSL	I	Audio data output mode selection input (Connected to Ground)
44	WDCK	O	48-bit slot D/A interface. Word clock. (Open)
45	LRCK	O	48-bit slot D/A interface. LR clock.
46	DATA	O	DA 16 output when PSSL=1. 48-bit slot serial data when PSSL=0
47	BCLK	O	DA 15 output when PSSL=1. 48-bit slot data when PSSL=0
48	64DATA	O	DA 14 output when PSSL=1. 64-bit slot data when PSSL=0 (Open)
49	64BCLK	O	DA 13 output when PSSL=1. 64-bit slot data when PSSL=0 (Open)
50	64LRCK	O	DA 12 output when PSSL=1. 64-bit slot data when PSSL=0 (Open)
51	GTOP	O	DA 11 output when PSSL=1. GTOP output when PSSL=0 (Open)
52	XUGF	O	DA 10 output when PSSL=1. XUGF output when PSSL=0 (Open)
53	XPLCK	O	DA 09 output when PSSL=1. XPLCK output when PSSL=0 (Open)
54	GFS	O	DA 08 output when PSSL=1. GFS output when PSSL=0 (Open)
55	PFCK	O	DA 07 output when PSSL=1. RFCK output when PSSL=0 (Open)
56	C2PO	O	DA 06 output when PSSL=1. C2PO output when PSSL=0 (Open)
57	XRAOF	O	DA 05 output when PSSL=1. XRA0F output when PSSL=0 (Open)
58	MNT3	O	DA 04 output when PSSL=1. MNT3 output when PSSL=0 (Open)
59	MNT2	O	DA 03 output when PSSL=1. MNT2 output when PSSL=0 (Open)
60	MNT1	O	DA 02 output when PSSL=1. MNT1 output when PSSL=0 (Open)
61	MNT0	O	DA 01 output when PSSL=1. MNT0 output when PSSL=0 (Open)
62	XTAI	I	X'tal oscillator circuit input
63	XTAO	O	X'tal oscillator circuit output (Open)
64	XTSL	I	X'tal selection input pin (Connected to Ground)
65	DVss	–	Digital Ground
66	FSTI	I	Clock input for digital servo block
67	FSTO	O	2/3 divider output of pins 62, 63
68	FSOF	O	1/4 divider output of pins 62, 63 (Open)
69	C16M	O	16.9344 MHz output (Open)
70	MD2	I	Digital-out ON/OFF control pin (Connected to +5V)
71	DOUT	O	Digital-out output pin
72	EMPH	O	Playback disc output in emphasis mode (Open)
73	WFCK	O	WFCK output
74	SCOR	O	Sub-code sync output
75	SBSO	O	Sub-P through Sub-W serial output
76	EXCK	I	Clock input for SBSO read-out
77	SUBQ	O	Sub-Q 80-bit output
78	SQCK	I	Clock input for SQSO read-out
79	MUTE	I	Muting selection pin
80	SENS	O	SENS output

- Abbreviation
WFCK: Wirte Frame Clock

Pin No.	Pin Name	I/O	Function
81	XRST	I	System reset
82	DIRC	I	Used in 1-track jump mode (Connected to +5v)
83	SCLK	I	SENS serial data read-out clock
84	DFSW	I	Defect selection pin (Connected to Ground)
85	ATSK	I	Input pin for anti-shock (Connected to Ground)
86	DATA	I	Serial data input, supplied from CPU
87	XLAT	I	Latch input, supplied from CPU
88	CLOCK	I	Serial data transfer clock input, supplied from CPU
89	COUT	O	Numbers of track counted signal output (Open)
90	DVDD	–	Digital power supply
91	MIRR	O	Mirror signal output (Open)
92	DFCT	O	Defect signal output (Open)
93	FOK	O	Focus OK output (Open)
94	FSW	O	Output to select spindle motor output filter (Open)
95	MON	O	Output to control ON/OFF of spindle motor (Open)
96	MDP	O	Output to control spindle motor servo
97	MDS	O	Output to control spindle motor servo (Open)
98	LOCK	O	GFS is sampled by 460 Hz. H when GFS is H (Open)
99	SSTP	I	Input signal to detect disc inner most track
100	SFDR	O	Sled drive output

- Abbreviation

GFS: Guard Frame Sync

• IC401 SYSTEM CONTROL (MB90677)

Pin No.	Pin Name	I/O	Function
1	A16	O	Address terminal for external RAM/ROM
2	A17	O	Chip select
3	CE1	O	Chip select
4	CE2	O	Chip select
5	$\overline{\text{ADJ}}$	I	ADJ mode input pin
6	$\overline{\text{AF ADJ}}$	I	AFADJ mode input pin
7	—	O	Open
8	—	O	Open
9	ALE	O	Address latch enable
10	OE	O	Lower during read
11	DGND	—	Digital ground
12	WE	I	Write signal of data bus low order 8 bit
13	—	O	Open
14	SPDT	I	Data input from IC for CD-TEXT (LC89170M)
15	CLK-T	O	Clock output to IC for CD-TEXT (LC89170M)
16	XMODE	O	Reset output to IC for CD-TEXT (LC89170M)
17	XLT	O	Latch output to CXD2545
18	K. DATA-I	I	Keyboard data input
19	K. DATA-O	O	Keyboard data output
20	K. CLK-O	O	Keyboard clock output
21	—	O	Connected to Ground
22	DATA	O	Data output for D/F pin of CXD2545
23	DVDD	—	5V power supply
24	CLK	O	5V power supply clock output
25	TBLL	O	Table motor output for left tern
26	AMUTE	O	Audio mute output
27	TBLR	O	Table motor output for right tern
28	—	O	Open
29	PGM. LT	O	Latch output
30	LDON	O	Laser diode on
31	SENSE	I	Sense input from CXD2545
32	SUBQ	I	Sub code Q data input
33	SQCK	O	Sub code Q data read-out clock
34	AVCC	—	Analog power supply (Connected to +5V)
35	AVR +	—	Analog reference voltage input (Connected to +5V)
36	AVR —	—	Analog reference voltage input (Connected to ground)
37	AVss	—	Analog ground
38	KEY0	I	Key input
39	KEY1	I	Key input
40	KEY2	I	Key input

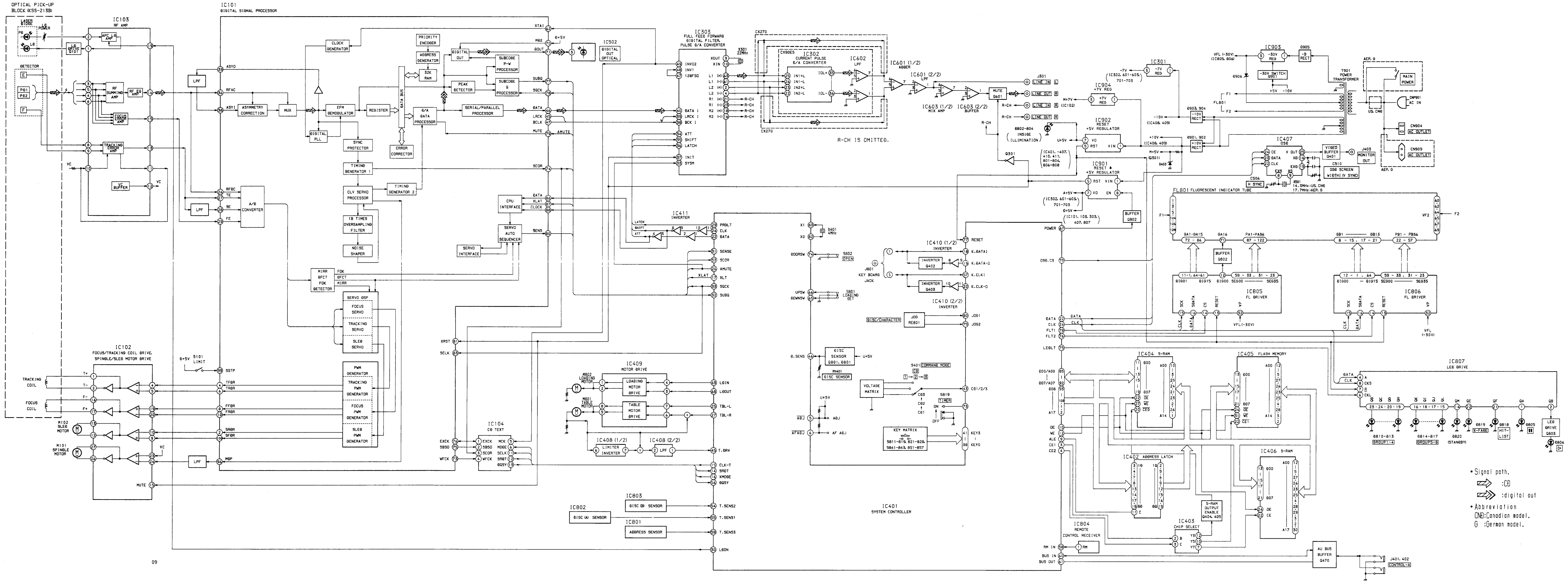
Pin No.	Pin Name	I/O	Function
41	KEY3	I	Key input
42	VSS	—	Ground pin
43	CD1/2/3	I	Command mode switch
44	FL, SLCT	I	Fluorescent indicator tube select port for different destination
45	T. DRV	I	Table driver
46	D. SENS	I	Disc sensor input
47	L. NTSC H. PAL	I	NTSC/PAL select
48	—	—	Open port
49	M2	—	Micro computer mode
50	M1	—	Micro computer mode
51	M0	—	Micro computer mode
52	HSTX	I	Hardware stand-by input
53	SCOR	I	SCOR input from CXD2545
54	T. SENS 2	I	Table sensor input
55	T. SENS 1	I	Table sensor input
56	DQSY	I	CD-TEXT sync input
57	K. CLKI	I	Keyboard clock input
58	RMIN	I	Remote control signal input
59	T. SENS 3	I	Table sensor
60	BUS IN	I	Control A1 input
61	BUS OUT	O	Control A1 output
62	—	O	Open port
63	—	O	Open port
64	—	O	Open port
65	DOWN SW	I	BU up switch input
66	UP SW	I	BU down switch input
67	POWER	O	Microprocessor peripheral IC power supply
68	LOD OUT	O	Loading motor output for outside direction
69	LOD IN	O	Loading motor output for inside direction
70	OSD. CS	O	Chip select output for OSD IC (MB90095)
71	—	O	Open port
72	—	O	Open port
73	TIMER	I	Timer switch input
74	DOOR-SW	I	Tray close switch input
75	LED LT	O	Chip select input for LED driver
76	FL-T 2	O	Chip select output for fluorescent indicator tube driver (IC1 M66004M5SP)
77	RESET	I	Reset input
78	FLT 1	O	Chip select output for fluorescent indicator tube driver (IC2 M66004M5SP)
79	JOG 2	I	Jog dial input
80	FOG 1	I	Jog dial input

Pin No.	Pin Name	I/O	Function
81	XGND	–	Ground
82	X0	I	X'tal oscillator terminal
83	X1	I	X'tal oscillator terminal
84	XVDD	–	+5V terminal
85	D00/A00	I/O	Data/Address common terminal for external RAM/ROM
86	D01/A01	I/O	Data/Address common terminal for external RAM/ROM
87	D02/A02	I/O	Data/Address common terminal for external RAM/ROM
88	D03/A03	I/O	Data/Address common terminal for external RAM/ROM
89	D04/A04	I/O	Data/Address common terminal for external RAM/ROM
90	D05/A05	I/O	Data/Address common terminal for external RAM/ROM
91	D06/A06	I/O	Data/Address common terminal for external RAM/ROM
92	D07/A07	I/O	Data/Address common terminal for external RAM/ROM
93	A08	O	Address terminal for external RAM/ROM
94	A09	O	Address terminal for external RAM/ROM
95	A10	O	Address terminal for external RAM/ROM
96	A11	O	Address terminal for external RAM/ROM
97	A12	O	Address terminal for external RAM/ROM
98	A13	O	Address terminal for external RAM/ROM
99	A14	O	Address terminal for external RAM/ROM
100	A15	O	Address terminal for external RAM/ROM

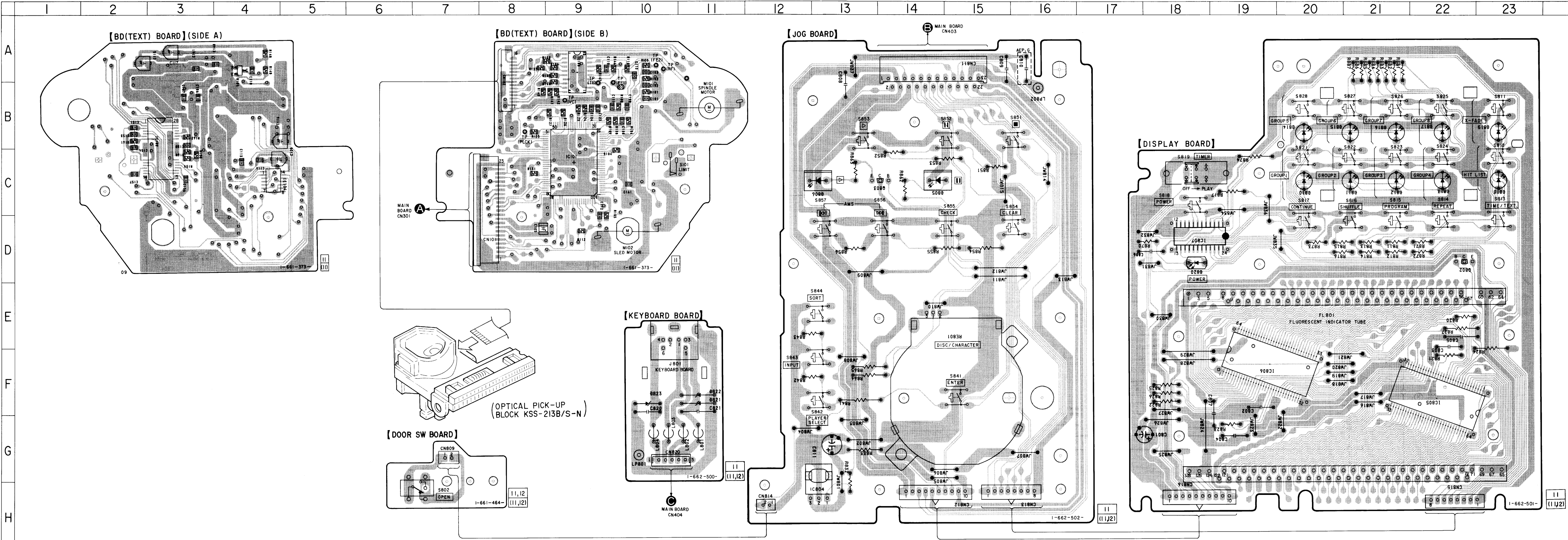
• IC407 OSD (MB90095-OEM166)

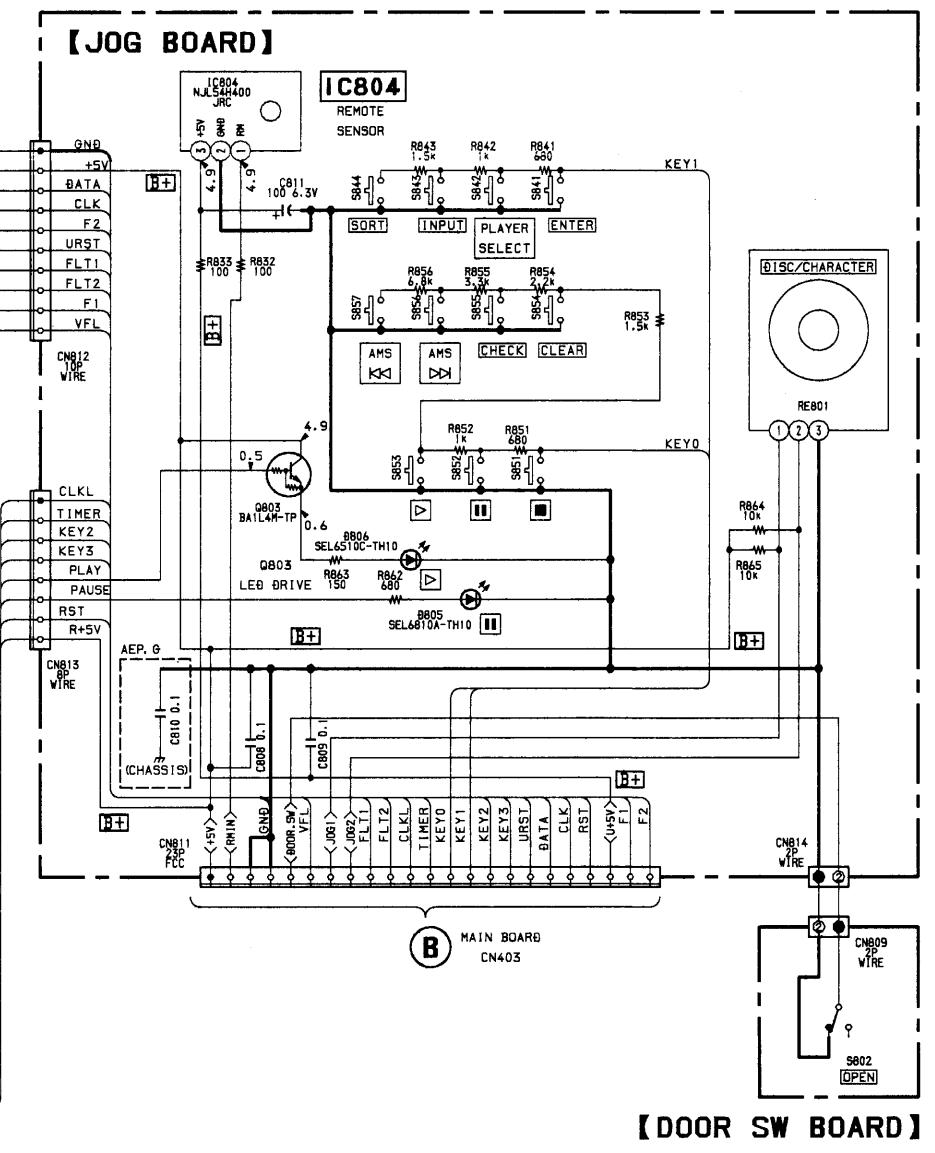
Pin No.	Pin Name	I/O	Function
1	—	–	Luminance signal input terminal for superimpose displays
2	—	–	Chroma signal input terminal for superimpose displays
3	—	–	Composite signal input terminal for superimpose displays
4	AVcc	–	Analog power supply pin
5	—	–	Not used
6	—	–	Not used
7	Vcc	–	Power supply pin
8	EXS	I	External circuit terminal of the clock generator for color burst signals
9	XS	O	External circuit terminal of the clock generator for color burst signals
10	$\overline{\text{HSYNC}}$	O	H. SYNC/COMPOSIT SYNC signal output
11	$\overline{\text{VSYNC}}$	O	V. SYNC signal output
12	—	–	Not used
13	—	–	Not used
14	Vss	–	Ground
15	EXD	I	External circuit terminal of the display dot clock generator
16	XD	O	External circuit terminal of the display dot clock generator
17	—	–	Not used
18	VOC2	O	Chroma signal output
19	VOC1	O	Chroma signal output
20	VOV0	O	Chroma signal output
21	$\overline{\text{TEST}}$	I	TEST signal input
22	CLK	I	Shift clock input terminal for serial transmission
23	DATA	I	Serial data input
24	CE	I	Chip select
25	—	–	Composite video signal output
26	—	–	Chroma signal output
27	—	–	Luminous signal output
28	AVss	–	Analog Ground pin

6-3. BLOCK DIAGRAM

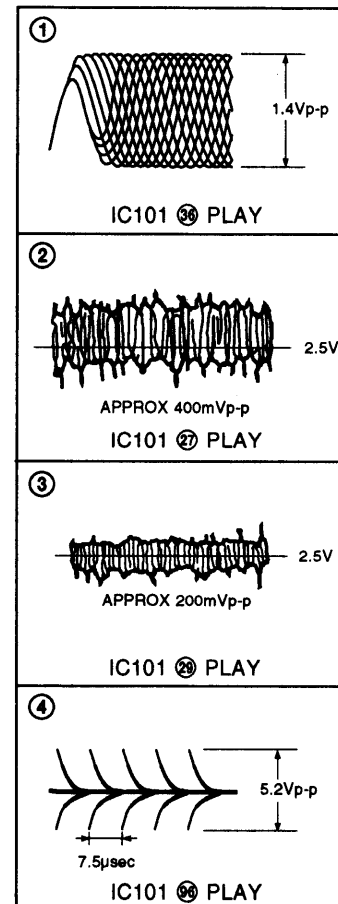


6-4. PRINTED WIRING BOARD — BD, DISP SECTION —
• See page 31 for Circuit Boards Location.





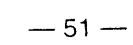
Note:
Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



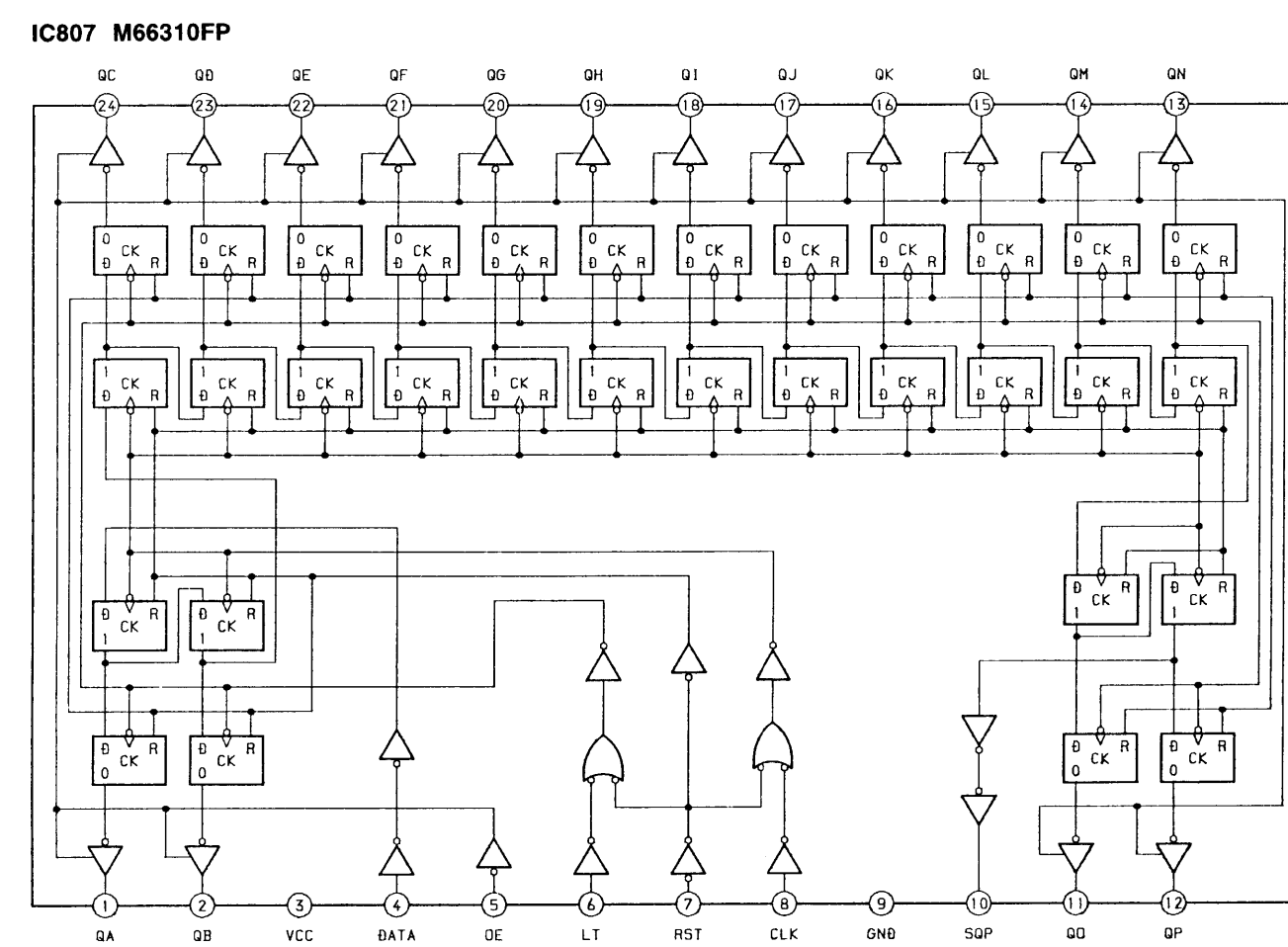
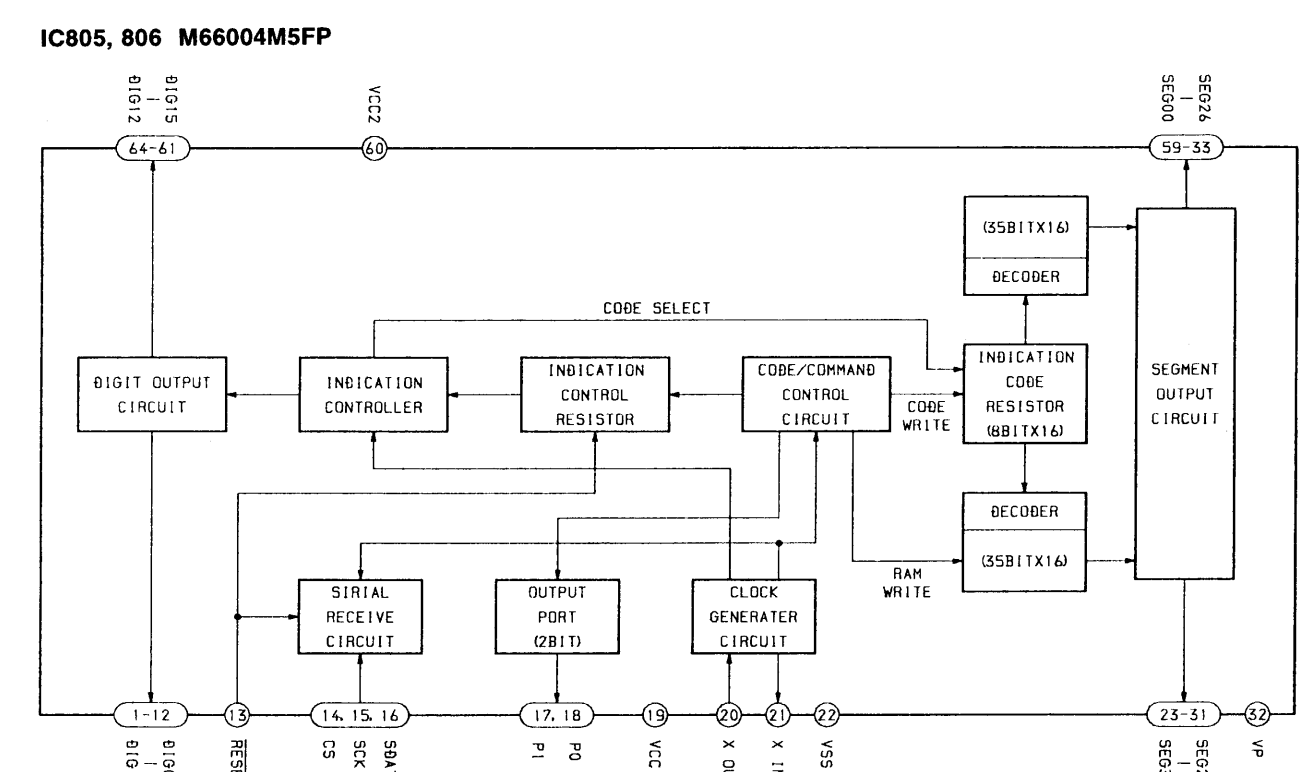
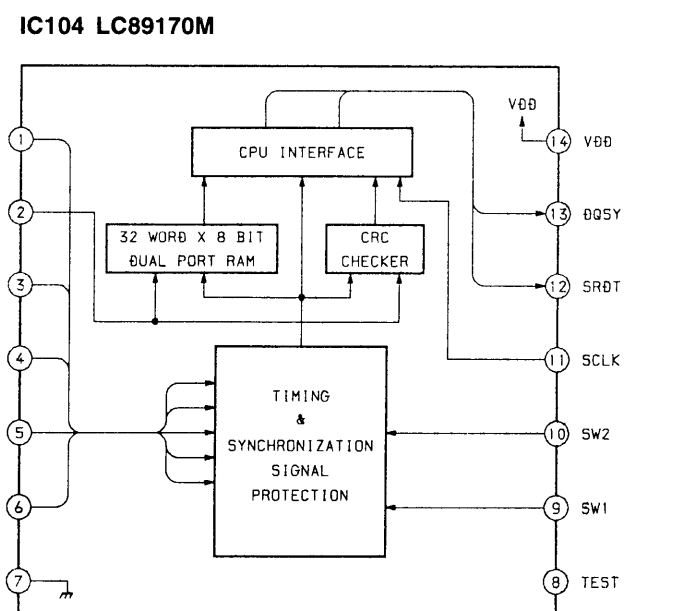
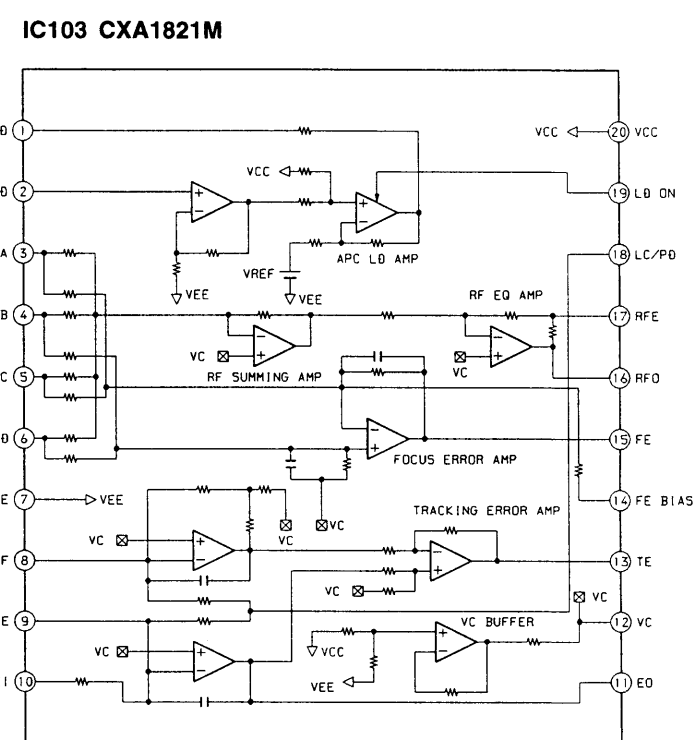
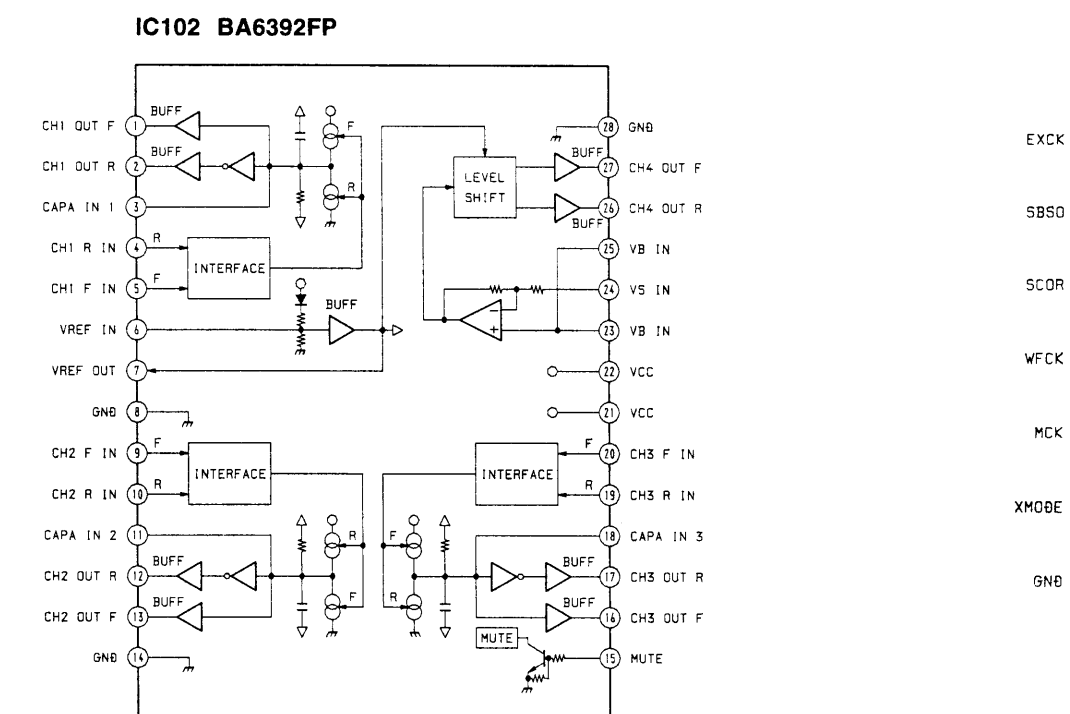
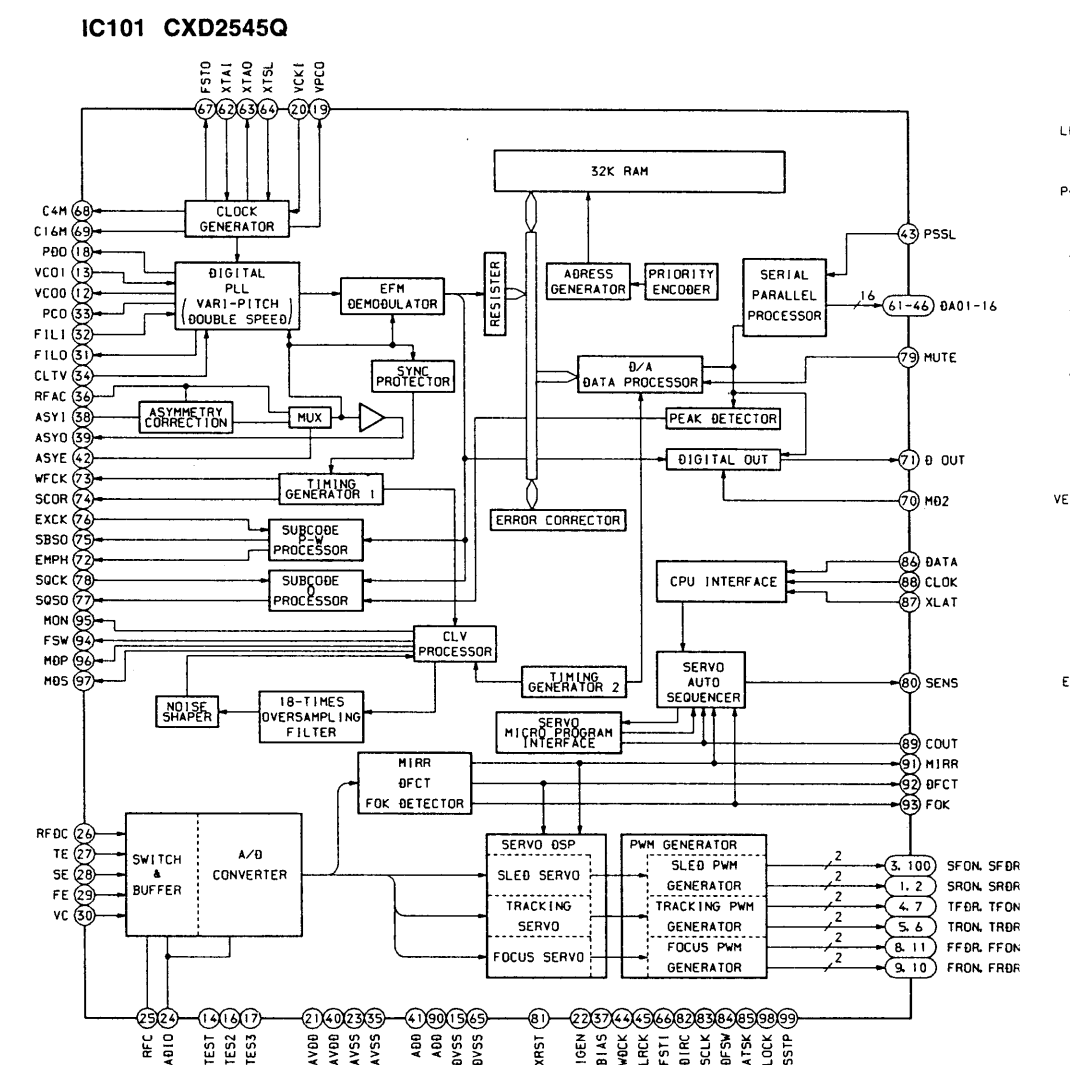
- See page 31 for Circuit Boards Location

Ref. No.	Location
D301	H-29
D302	C-31
D401	F-22
D402	E-10
D403	F-9
D404	D-21
D405	D-21
D406	D-24
D407	D-24
D408	D-21
D410	C-27
D411	D-14
D412	C-25
D413	C-28
D414	F-27
D415	C-25
D416	E-27
D470	B-14
D801	G-11
D802	E-15
D803	E-16
D804	E-17
D901	E-7
D902	E-7
D903	F-7
D904	E-7
D905	D-7
D906	D-7
D911	G-27
IC301	F-27
IC302	F-29
IC303	C-29
IC401	E-25
IC402	D-22
IC403	D-23
IC404	F-23
IC405	E-23
IC406	F-24
IC407	H-25
IC408	D-21
IC409	F-21
IC410	C-24
IC411	D-26
IC502	A-16
IC601	H-27
IC602	G-28
IC603	H-28
IC701	H-31
IC702	G-30
IC703	H-30
IC801	H-14
IC802	H-15
IC803	I-15
IC901	D-10
IC902	D-12
IC903	D-7
IC904	D-13
Q301	I-29
Q401	H-26
Q402	C-23
Q403	C-23
Q404	E-22
Q405	F-22
Q470	B-13
Q601	I-28
Q701	I-30
Q801	H-11
Q901	E-7
Q902	D-10

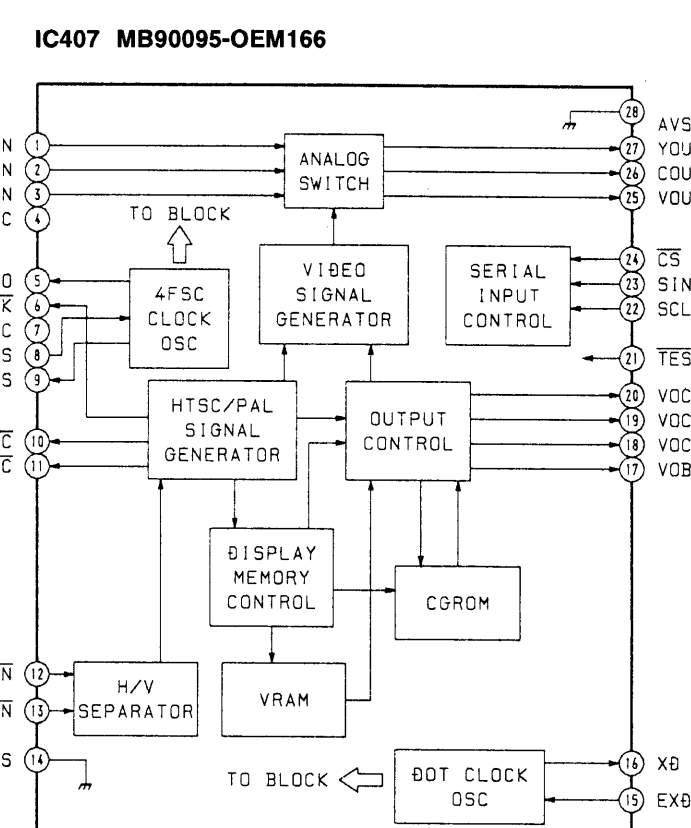
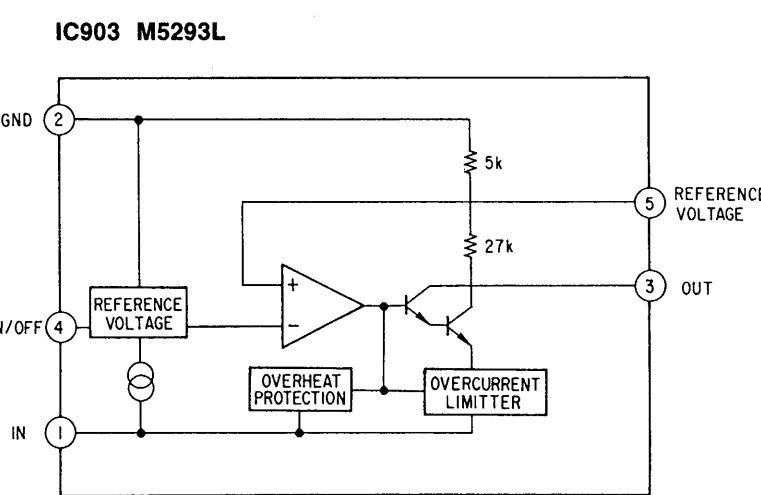
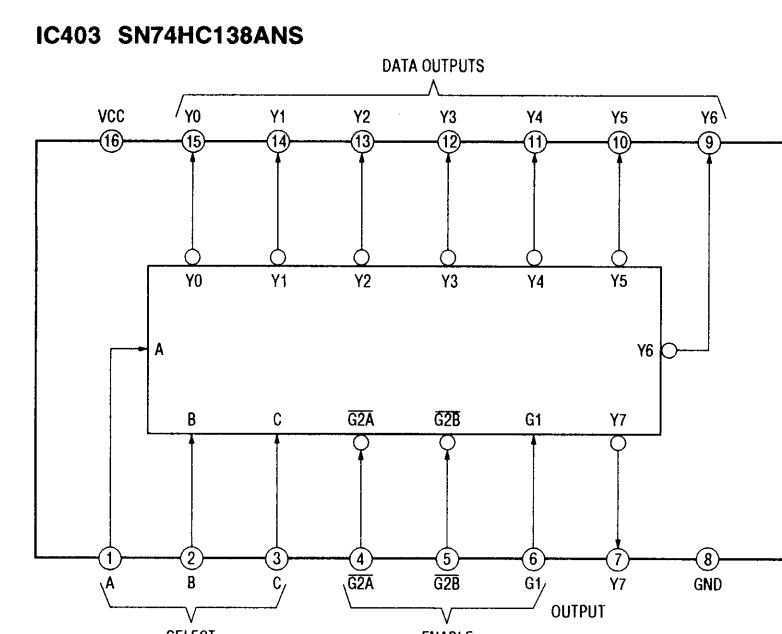
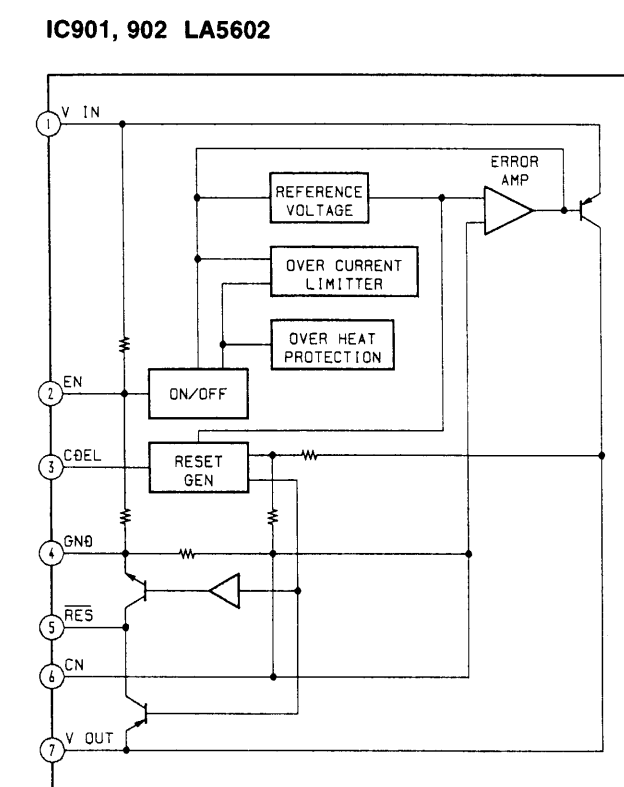
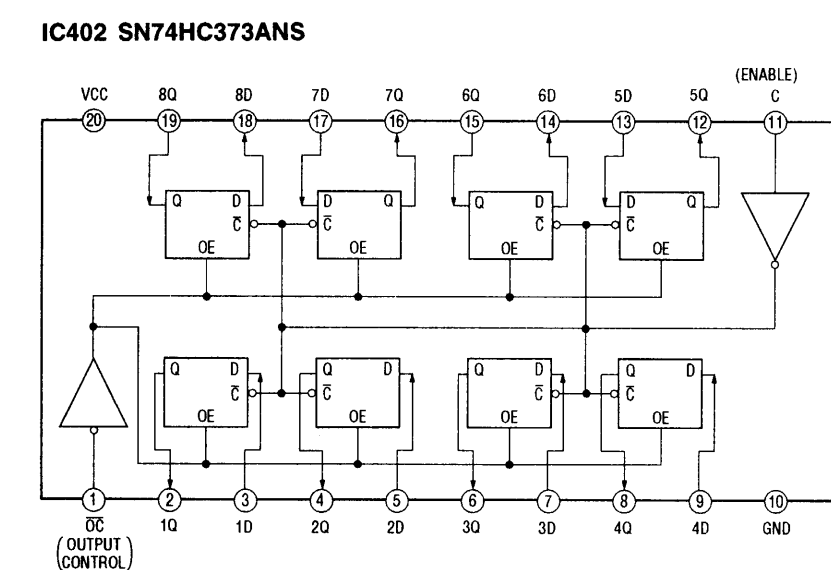
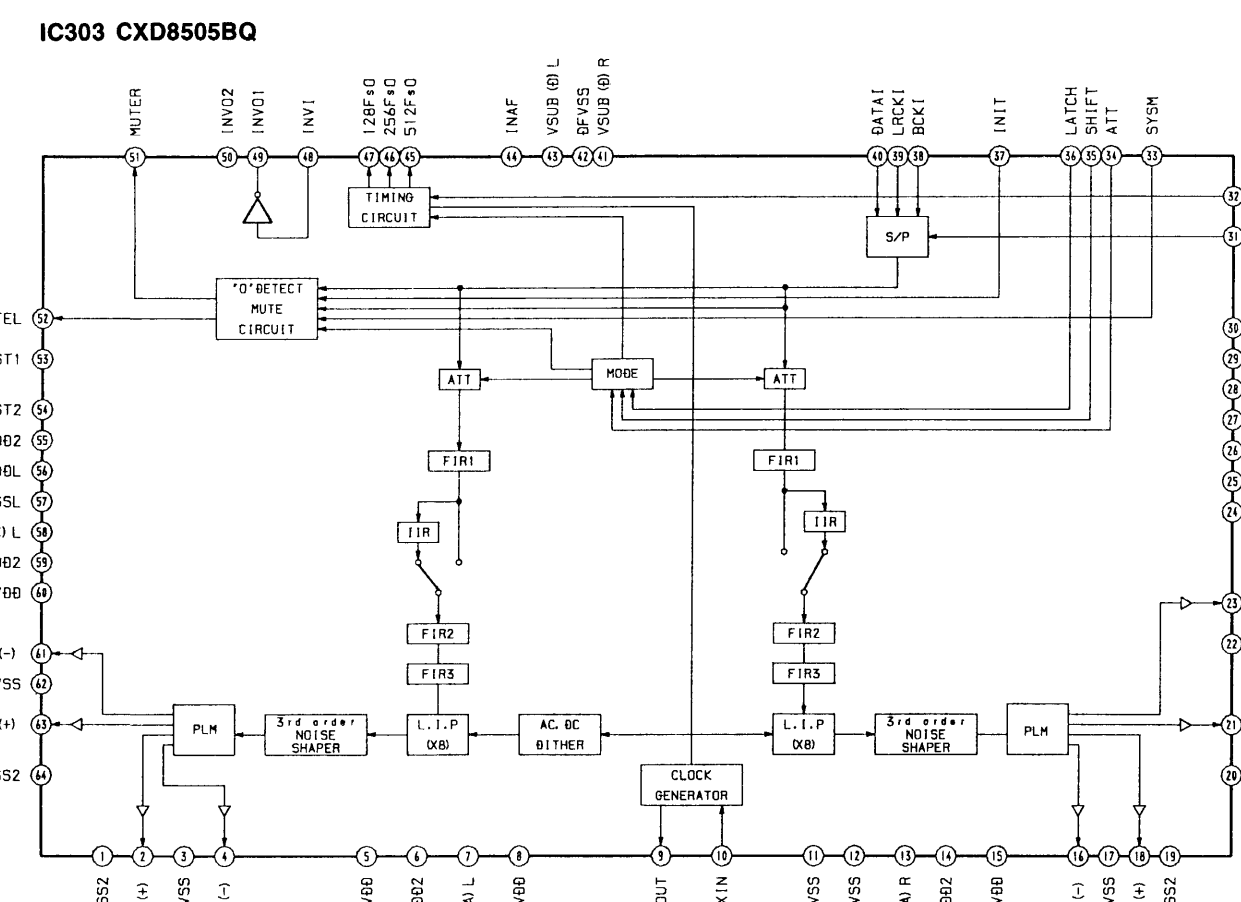
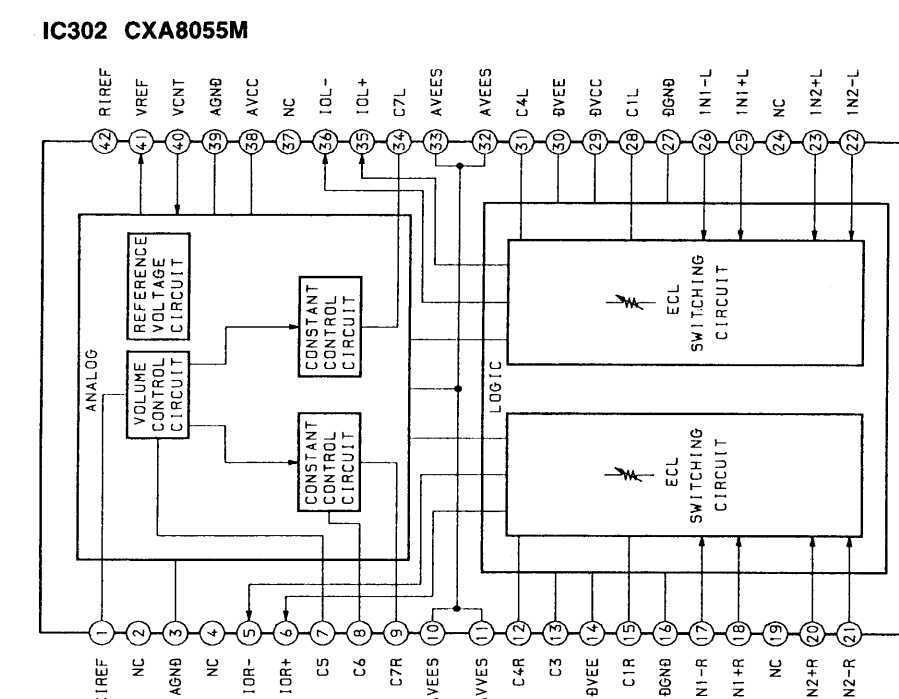
- Abbreviation
JW : Jumper wire.



6-8. IC BLOCK DIAGRAMS



- **MAIN Section**



SECTION 7 EXPLODED VIEWS

NOTE:

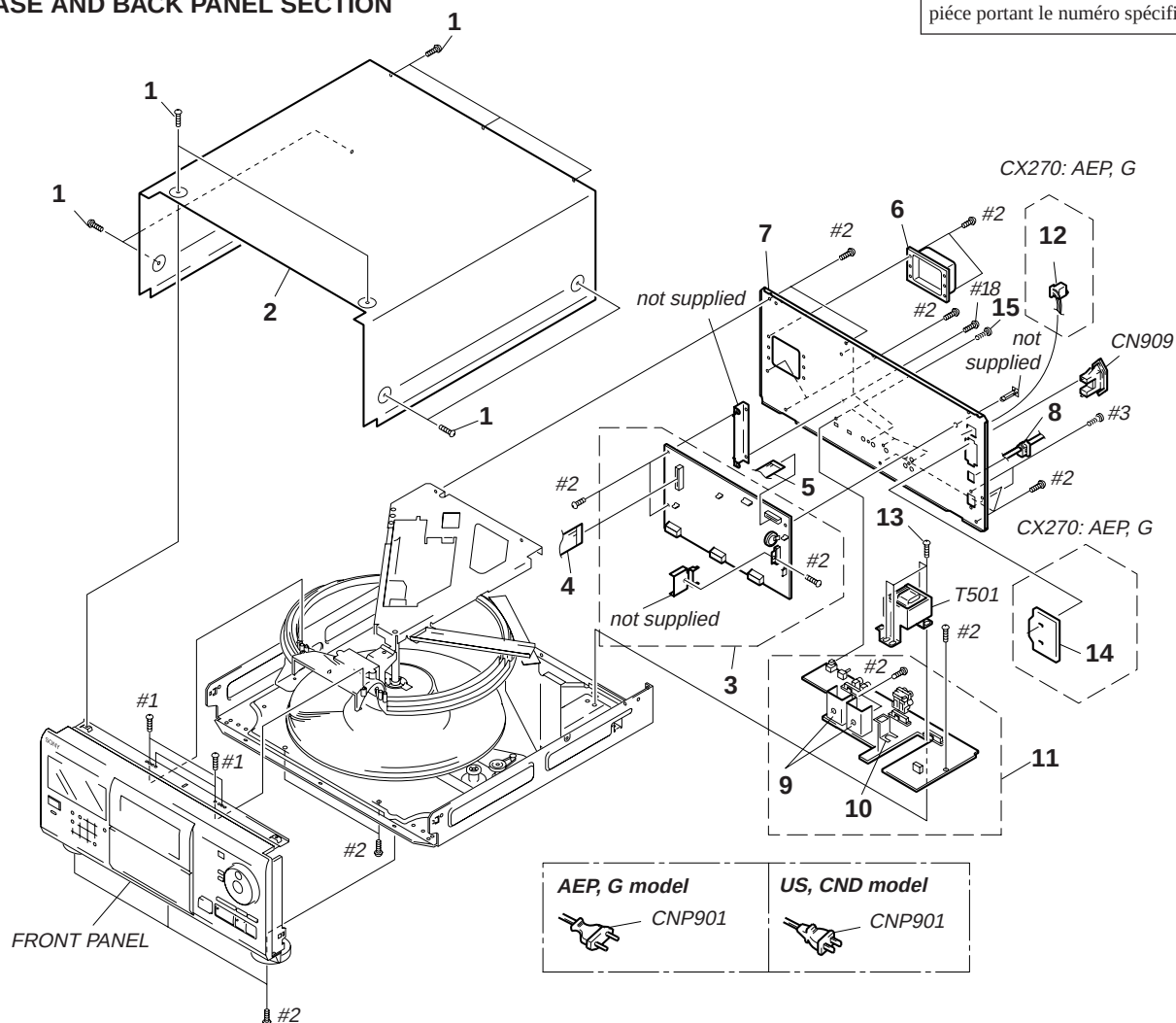
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- Abbreviation
CND : Canadian model
G : German model

The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.

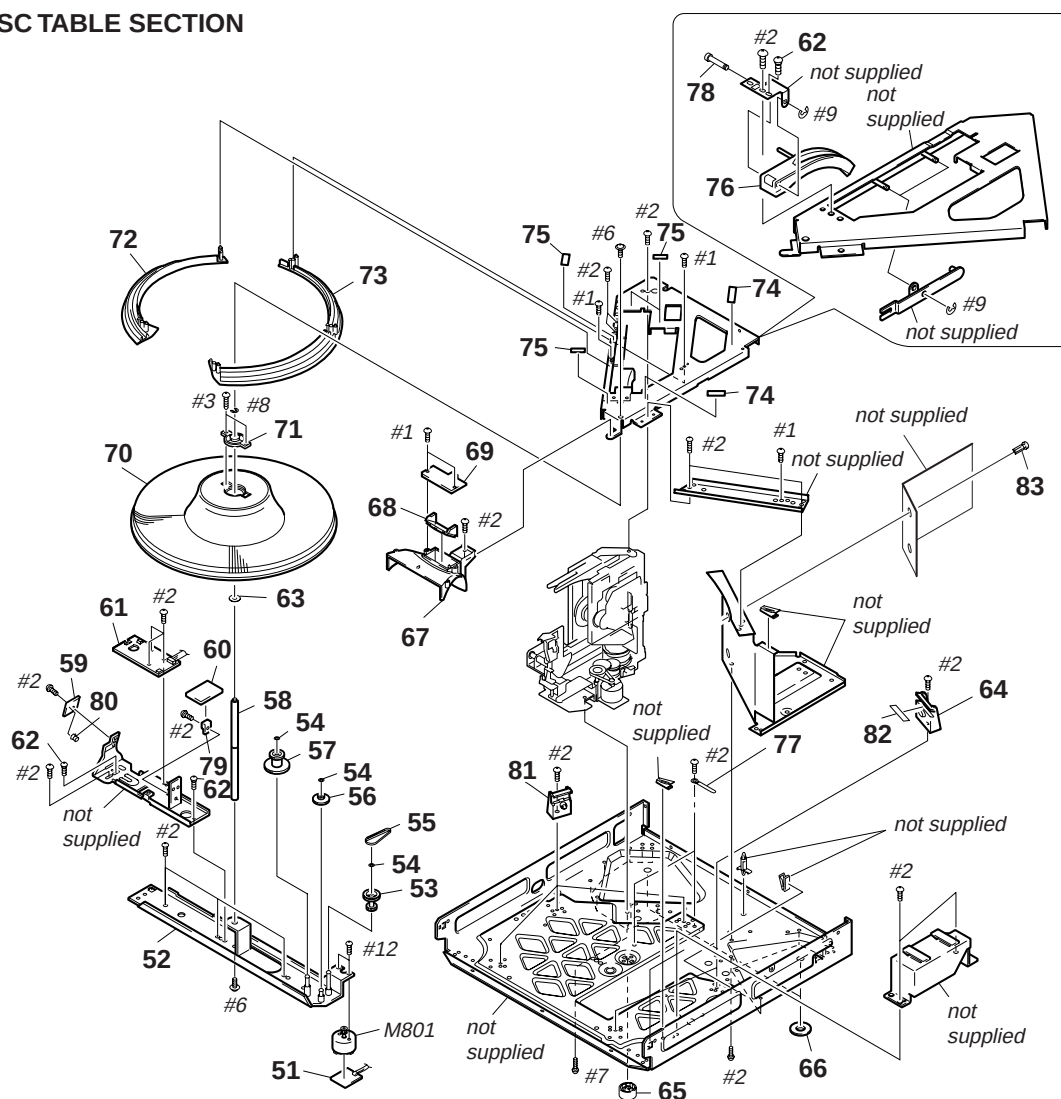
Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. CASE AND BACK PANEL SECTION



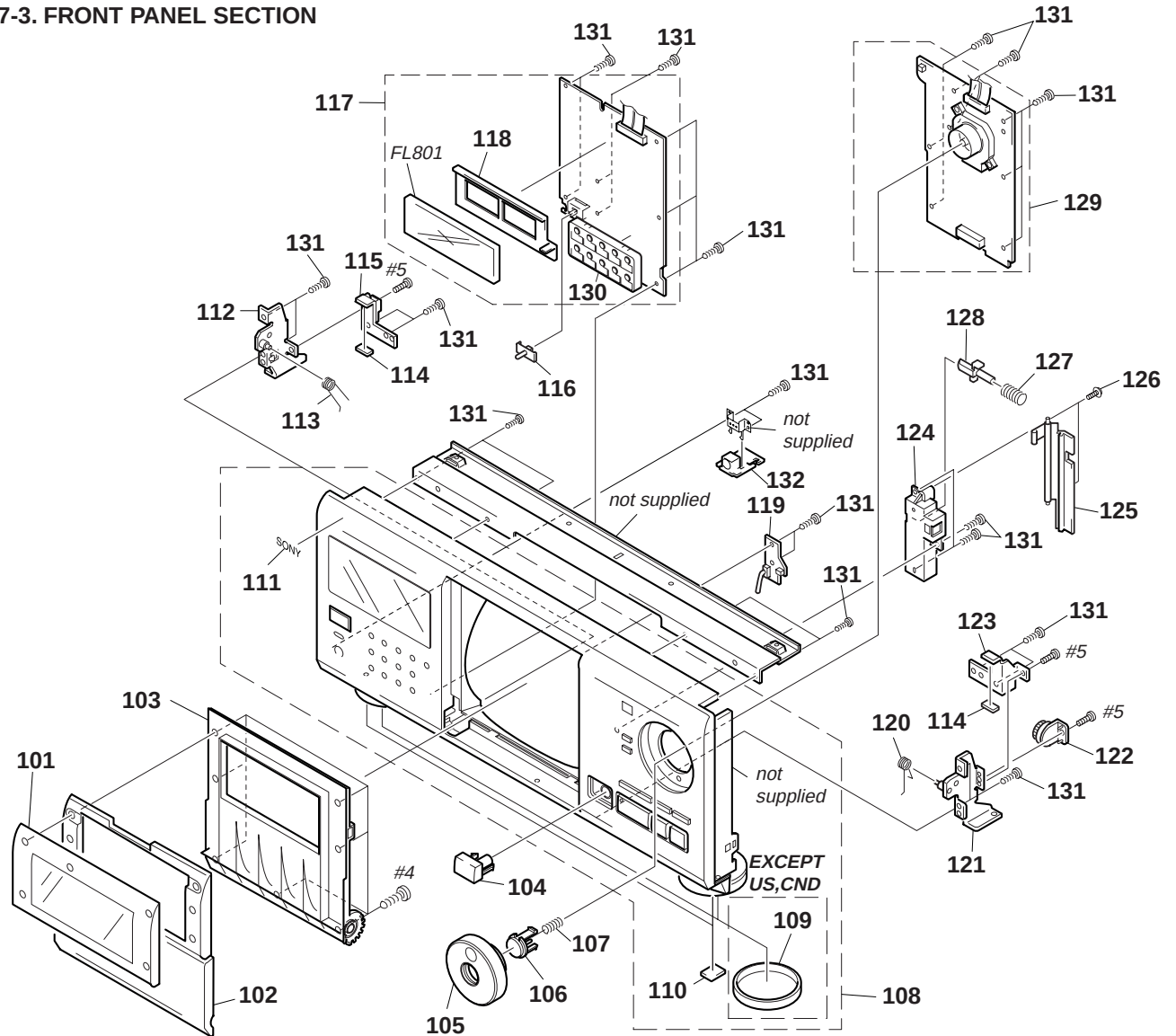
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-363-099-01	SCREW (CASE 3 TP2)		* 10	4-962-200-01	PLATE (TR), GROUND	
* 2	4-982-946-11	CASE		* 11	A-4699-081-A	JACK BOARD, COMPLETE (CX270:US,CND)	
* 3	A-4699-080-A	MAIN BOARD, COMPLETE (CX270:US,CND)		* 11	A-4699-082-A	JACK BOARD, COMPLETE (CX270:AEP,G)	
* 3	A-4699-090-A	MAIN BOARD, COMPLETE (CX90ES)		* 11	A-4699-091-A	JACK BOARD, COMPLETE (CX90ES)	
* 3	A-4699-232-A	MAIN BOARD, COMPLETE (CX270:AEP,G)		* 12	1-662-505-11	SW BOARD (CX270:AEP,G)	
4	1-773-183-11	WIRE (FLAT TYPE)(23 CORE)		13	4-886-821-11	SCREW, S TIGHT, +PTTWH 3X6	
5	1-777-398-11	WIRE (FLAT TYPE)(23 CORE)		* 14	1-662-574-11	OUTLET BOARD (CX270:AEP,G)	
* 6	4-982-807-01	COVER (FFC)		15	3-704-515-01	SCREW (BV/RING)	
* 7	4-983-366-01	PANEL, BACK (CX270:US)		$\triangle$ CN909	1-526-794-11	OUTLET, AC (CX270:AEP,G)	
* 7	4-983-366-11	PANEL, BACK (CX270:CND)		$\triangle$ CNP901	1-575-042-21	CORD, POWER (CX90ES/CX270:US,CND)	
* 7	4-983-366-21	PANEL, BACK (CX270:AEP,G)		$\triangle$ CNP901	1-575-651-21	CORD, POWER (CX270:AEP,G)	
* 7	4-983-366-31	PANEL, BACK (CX90ES:US)		$\triangle$ T501	1-429-680-11	TRANSFORMER, POWER (CX90ES/CX270:US,CND)	
* 7	4-983-366-41	PANEL, BACK (CX90ES:CND)		$\triangle$ T501	1-429-681-11	TRANSFORMER, POWER (CX270:AEP,G)	
* 8	3-703-244-00	BUSHING (2104), CORD					
* 9	4-363-146-31	HEAT SINK, V.OUT					

7-2. DISC TABLE SECTION



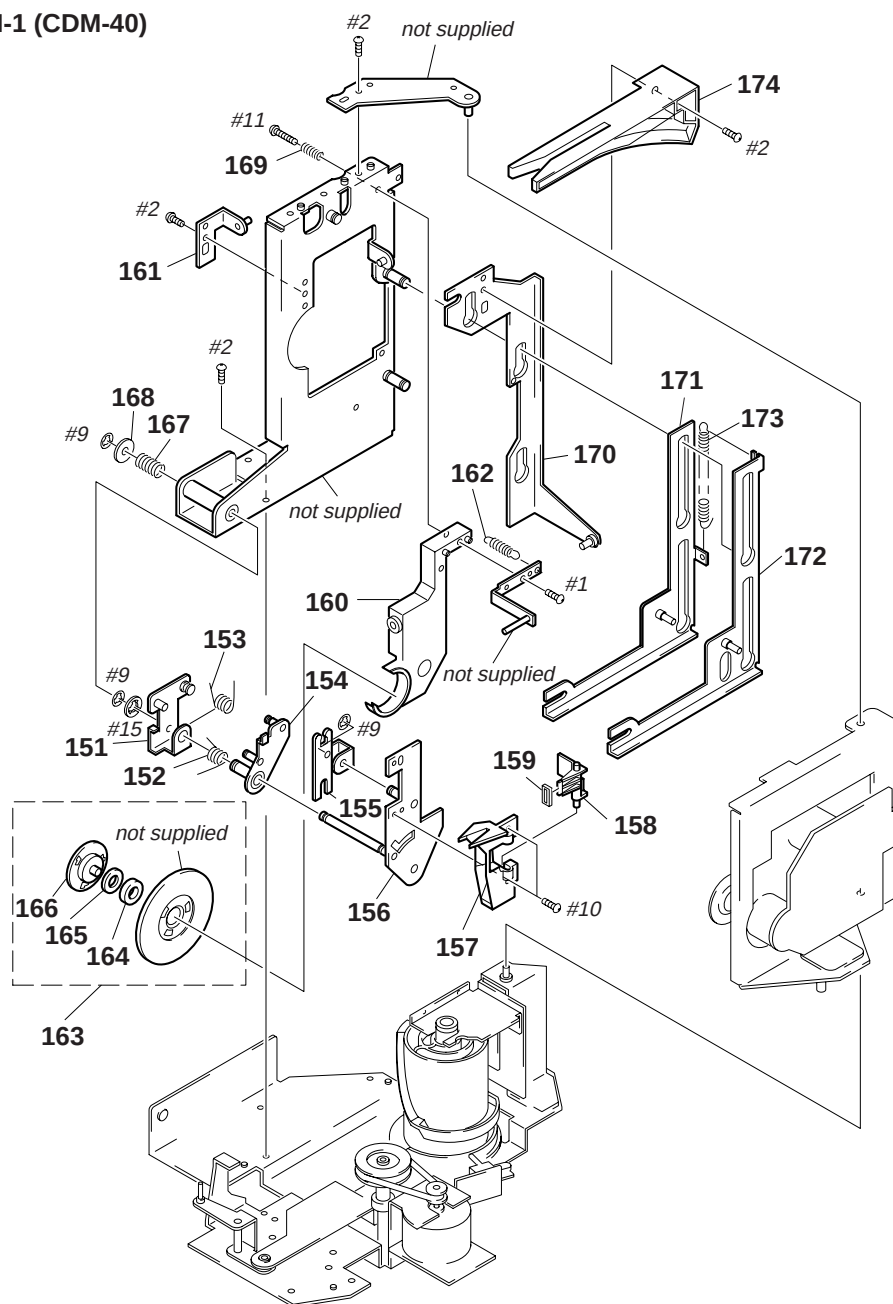
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 51	1-661-466-11	T.MOTOR BOARD		68	4-982-805-01	INDICATOR (INTERNAL)	
52	X-4947-230-1	BRACKET (TABLE) ASSY		* 69	1-661-471-11	ILLUMINATION BOARD	
53	X-4947-607-1	GEAR (PULLEY) ASSY		70	X-4947-231-1	TABLE (200) ASSY	
54	3-325-697-21	WASHER					
55	4-982-867-01	BELT (TIMING)		71	4-976-471-01	BEARING (TABLE)	
56	4-982-893-01	GEAR (CENTER 2)		* 72	4-982-803-01	RING (B)	
57	4-982-891-01	GEAR (TABLE)		* 73	4-982-802-01	RING (A)	
58	4-982-892-01	SHAFT (CENTER)		* 74	3-378-433-01	CUSHION, SARANET	
* 59	1-661-468-11	LUMINOUS BOARD		75	4-985-553-01	CUSHION	
* 60	1-661-469-11	RAY CATCHER BOARD					
* 61	1-661-470-11	T.SENS BOARD		76	4-982-862-01	GUIDE (DISC T)	
62	3-356-601-11	SCREW, STEP		77	3-703-397-01	STOPPER, WIRING	
63	3-701-446-21	WASHER, 8		78	4-982-870-01	SHAFT (GUIDE FULCRUM)	
64	X-4947-229-1	HOLDER (ROLLER) ASSY		* 79	4-985-300-01	HOLDER (P-T)	
65	4-931-169-01	FOOT		* 80	4-976-473-01	HOLDER (LED-S)	
66	4-983-279-01	CUSHION (RF)		81	X-4947-606-1	HOLDER (ROLLER 2) ASSY	
* 67	4-982-804-01	COVER (DISC)		82	4-985-574-01	SPACER (ROLLER)	
				83	4-053-543-01	RIVET, NYLON	
				M801	A-4604-847-A	MOTOR ASSY (TABLE)	

7-3. FRONT PANEL SECTION



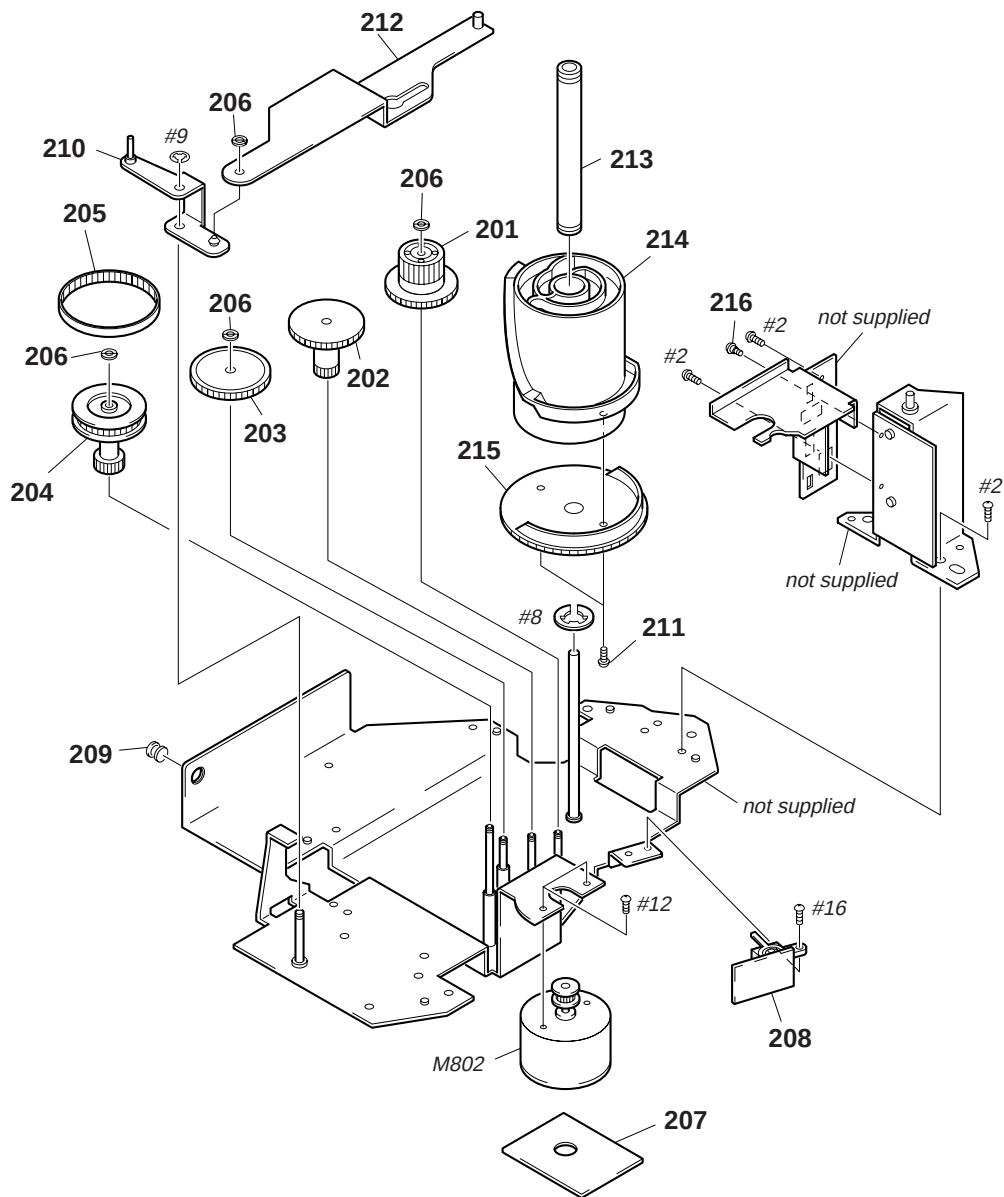
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	4-982-780-01	WINDOW (LID)(CX270)		116	3-917-216-21	KNOB (TIMER)	
101	4-983-371-01	WINDOW (LID)(CX90ES)		* 117	A-4699-087-A	DISP BOARD, COMPLETE	
102	4-982-778-11	LID (F)(CX270)		* 118	4-983-363-01	HOLDER (FL)	
102	4-983-369-01	LID (F)(CX90ES)		* 119	1-661-464-11	DOOR SW BOARD	
103	4-982-779-01	LID (R)(CX270)		120	4-982-798-11	SPRING (B), TORSION	
103	4-983-370-01	LID (R)(CX90ES)		121	X-4947-220-1	PLATE (B) ASSY, FULCRUM	
104	4-982-781-01	BUTTON (OPEN)		122	3-354-963-01	DAMPER	
105	4-982-787-11	KNOB (JOG)		* 123	4-982-794-01	STOPPER (B)	
106	4-982-788-01	BUTTON (ENTER)		* 124	4-982-782-01	HOLDER (OPEN)	
107	4-984-085-01	SPRING (ENTER), COMPRESSION		* 125	4-982-783-01	LEVER (WINDMILL)	
108	X-4947-313-1	PANEL ASSY, FRONT (CX270:US,CND)		126	4-933-134-01	SCREW (+PTPWH M2.6X6)	
108	X-4947-314-1	PANEL ASSY, FRONT (CX270:AEP,G)		127	4-982-785-01	SPRING (OPEN), COMPRESSION	
108	X-4947-315-1	PANEL ASSY, FRONT (CX90ES)		128	4-982-784-01	LEVER (LOCK)	
109	4-977-593-11	RING (DIA.50), ORNAMENTAL(EXCEPT US,CND)		* 129	A-4699-088-A	JOG BOARD, COMPLETE (EXCEPT AEP,G)	
110	4-977-358-11	CUSHION (8X12.5)		* 129	A-4699-530-A	JOG BOARD, COMPLETE (AEP,G)	
111	4-963-404-21	EMBLEM (5-A), SONY		* 130	4-982-812-01	HOLDER (LED)	
112	X-4947-219-1	PLATE (A) ASSY, FULCRUM		131	4-951-620-01	SCREW (2.6X8), +BVTP	
113	4-982-797-11	SPRING (A), TORSION		* 132	1-662-500-11	KEYBOARD BOARD	
114	4-982-799-01	CUSHION (STOPPER)		FL801	1-517-565-11	INDICATOR TUBE, FLUORESCENT	
* 115	4-982-793-01	STOPPER (A)					

7-4. MECHANISM SECTION-1 (CDM-40)



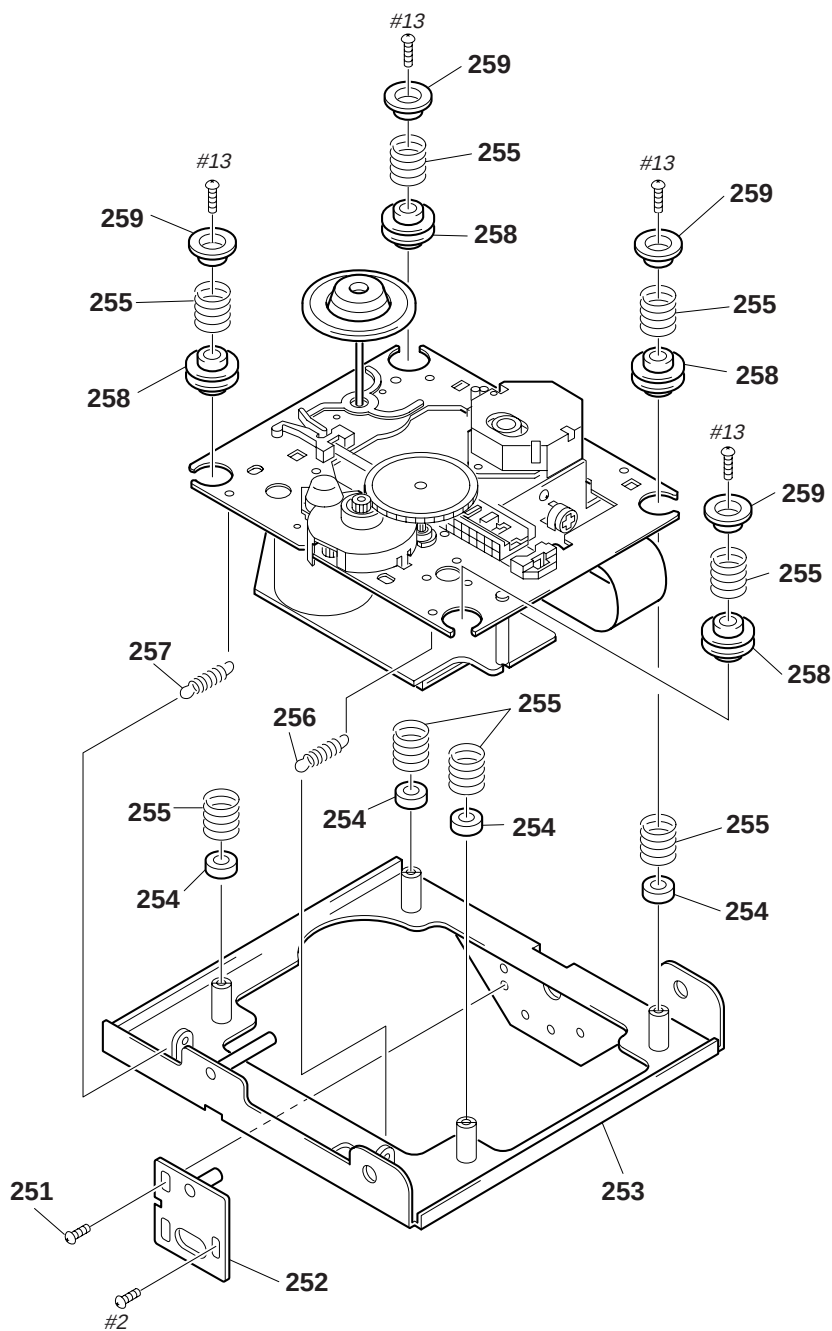
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	X-4947-241-1	LEVER (C) ASSY		163	A-4672-092-A	MAGNET ASSY	
152	4-982-882-01	SPRING (LIMITTER), TORSION		164	3-366-559-02	MAGNET (CHUCK)	
153	4-982-881-01	SPRING (HOLDER), TORSION		165	4-960-633-01	YOKE (MAGNET)	
154	X-4947-239-1	LIMITTER (A) ASSY					
155	4-982-853-01	LEVER (B)		166	4-960-632-11	PULLEY (B)	
156	X-4947-240-1	LEVER (A) ASSY		167	4-983-319-01	SPRING (THRUST), COMPRESSION	
157	4-982-854-01	HOLDER (DISC A)		* 168	4-976-456-01	WASHER (STOPPER)	
158	4-982-855-01	HOLDER (DISC B)		169	3-938-588-01	SPRING, COMPRESSION	
159	4-982-856-01	PAD		170	X-4947-242-1	SLIDER (C) ASSY	
160	4-976-458-01	HOLDER (MAGNET)					
161	X-4946-326-1	HOLDER (CLAMP) ASSY		171	X-4947-238-1	SLIDER (B) ASSY	
162	4-983-777-01	SPRING (MG), TENSION		172	X-4947-237-1	SLIDER (A) ASSY	
				173	4-982-880-01	SPRING (SLIDER A), TENSION	
				* 174	4-982-863-01	GUIDE (DISC P)	

7-5. MECHANISM SECTION-2 (CDM-40)



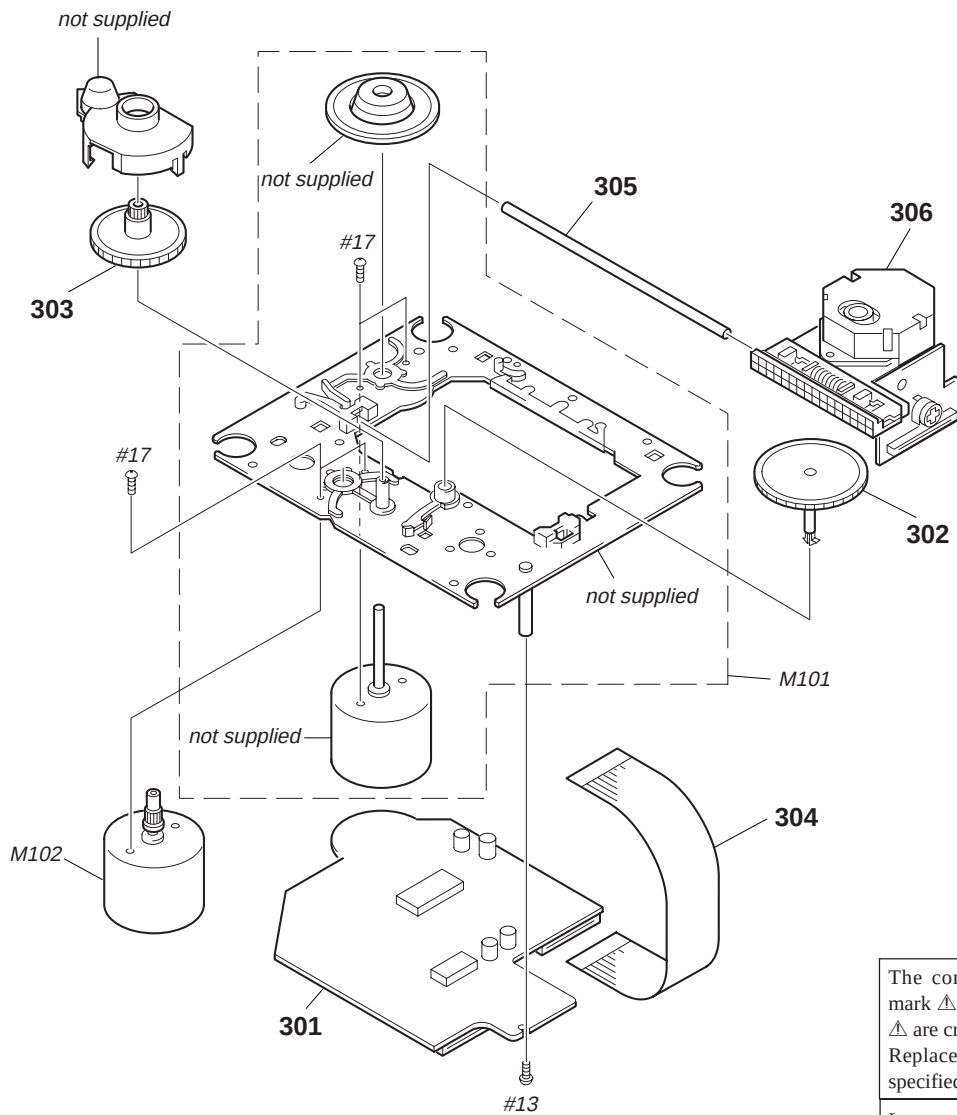
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	4-976-465-01	GEAR (LOADING 1)		210	X-4947-227-1	LEVER (STOPPER) ASSY	
202	4-976-466-01	GEAR (LOADING 2)		211	4-951-291-01	SCREW	
203	4-982-893-01	GEAR (CENTER 2)		212	X-4947-234-1	SLIDER (LOCK) ASSY	
204	X-4947-607-1	GEAR (PULLEY) ASSY		213	4-982-857-01	BEARING (CAM)	
205	4-982-867-01	BELT (TIMING)		214	4-982-860-01	CAM (A)	
206	3-325-697-21	WASHER		215	4-982-861-01	CAM (B)	
* 207	1-661-465-11	L.MOTOR BOARD		216	3-356-601-11	SCREW, STEP	
* 208	1-661-467-11	L.SW BOARD		M802	A-4604-847-A	MOTOR ASSY (LOADING)	
209	3-489-073-00	SCREW, THRUST					

7-6. BASE UNIT SECTION-1 (KSM-213 BKN/M-N)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
251	3-356-601-11	SCREW, STEP		256	4-982-872-01	SPRING (F-2), TENSION	
252	X-4947-244-1	SLIDER (BU ADJUSTMENT) ASSY		257	4-982-871-01	SPRING (F-1), TENSION	
253	X-4947-243-1	HOLDER (BU) ASSY		258	4-982-858-01	DAMPER	
254	4-982-859-01	HOLDER (DAMPER)		259	4-960-617-01	CAP (F)	
255	4-982-878-01	SPRING (F), COMPRESSION					

7-7. BASE UNIT SECTION-2 (KSM-213 BKN/M-N)



The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque $\triangle$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 301	A-4699-163-A	BD (TEXT) BOARD, COMPLETE		$\triangle$ 306	8-848-376-01	OPTICAL PICK-UP BLOCK KSS-213B/S-N	
302	2-626-907-01	GEAR (A)(S)		M101	X-2626-234-1	T.T CHASSIS ASSY (MG)(K)(SPINDLE)	
303	2-627-003-01	GEAR (B)(RP)		M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)	
304	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)					
305	2-626-908-01	SHAFT, SLED					

BD (TEXT)

SECTION 8 ELECTRICAL PARTS LIST

Note:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA..., uPB...: μ PB...,
uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H
- Abbreviation
CND : Canadian model
G : German model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4699-163-A	BD (TEXT) BOARD, COMPLETE *****		IC104	8-759-428-57	IC LC89170M	
		< CAPACITOR >				< MOTOR >	
C101	1-163-005-11	CERAMIC CHIP 470PF	10% 50V	M101	X-2626-234-1	T.T CHAISSIS ASSY (MG)(K)(SPINDLE)	
C102	1-163-038-91	CERAMIC CHIP 0.1uF	25V	M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)	
C103	1-163-005-11	CERAMIC CHIP 470PF	10% 50V			< TRANSISTOR >	
C105	1-135-155-21	TANTALUM CHIP 4.7uF	10% 16V	Q101	8-729-010-08	TRANSISTOR MSB710-R	
C106	1-164-346-11	CERAMIC CHIP 1uF	16V			< RESISTOR >	
C107	1-164-346-11	CERAMIC CHIP 1uF	16V	R101	1-216-077-00	METAL CHIP 15K 5% 1/10W	
C108	1-163-035-00	CERAMIC CHIP 0.047uF	50V	R102	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C109	1-163-145-00	CERAMIC CHIP 0.0015uF	5% 50V	R103	1-216-077-00	METAL CHIP 15K 5% 1/10W	
C110	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V	R104	1-216-085-00	METAL CHIP 33K 5% 1/10W	
C111	1-163-251-11	CERAMIC CHIP 100PF	5% 50V	R105	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C112	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R106	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C113	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R107	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
C114	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R108	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C115	1-126-607-11	ELECT CHIP 47uF	20% 4V	R109	1-216-121-91	METAL GLAZE 1M 5% 1/10W	
C116	1-126-607-11	ELECT CHIP 47uF	20% 4V	R110	1-216-025-91	METAL GLAZE 100 5% 1/10W	
C117	1-126-209-11	ELECT 100uF	20% 4V	R112	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C118	1-163-275-11	CERAMIC CHIP 0.001uF	5% 50V	R123	1-216-073-00	METAL CHIP 10K 5% 1/10W	
C119	1-163-231-11	CERAMIC CHIP 15PF	5% 50V	R124	1-216-097-91	METAL GLAZE 100K 5% 1/10W	
C120	1-124-778-00	ELECT CHIP 22uF	20% 6.3V	R125	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C123	1-164-232-11	CERAMIC CHIP 0.01uF	50V	R126	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C124	1-164-005-11	CERAMIC CHIP 0.47uF	25V	R127	1-216-049-91	METAL GLAZE 1K 5% 1/10W	
C140	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R131	1-216-037-00	METAL CHIP 330 5% 1/10W	
C141	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R135	1-216-295-91	CONDUCTOR, CHIP(2012)	
C151	1-163-237-11	CERAMIC CHIP 27PF	5% 50V	R136	1-216-295-91	CONDUCTOR, CHIP(2012)	
C153	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R137	1-216-295-91	CONDUCTOR, CHIP(2012)	
C154	1-164-336-11	CERAMIC CHIP 0.33uF	25V	R138	1-216-295-91	CONDUCTOR, CHIP(2012)	
C156	1-163-237-11	CERAMIC CHIP 27PF	5% 50V	R141	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
C157	1-163-145-00	CERAMIC CHIP 0.0015uF	5% 50V	R142	1-216-081-00	METAL CHIP 22K 5% 1/10W	
C159	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V	R143	1-216-103-00	METAL CHIP 180K 5% 1/10W	
C161	1-163-038-91	CERAMIC CHIP 0.1uF	25V	R144	1-216-103-00	METAL CHIP 180K 5% 1/10W	
		< CONNECTOR >		R146	1-216-073-00	METAL CHIP 10K 5% 1/10W	
CN101	1-770-072-11	CONNECTOR, FFC 23P		R147	1-216-081-00	METAL CHIP 22K 5% 1/10W	
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P		R148	1-216-001-00	METAL CHIP 10 5% 1/10W	
		< IC >		R149	1-216-003-11	METAL GLAZE 12 5% 1/10W	
IC101	8-752-369-78	IC CXD2545Q		R158	1-216-111-91	METAL GLAZE 390K 5% 1/10W	
IC102	8-759-176-09	IC BA6392FP		R159	1-216-101-00	METAL CHIP 150K 5% 1/10W	
IC103	8-752-072-45	IC CXA1821M-T6		R160	1-216-295-91	CONDUCTOR, CHIP(2012)	

BD (TEXT)

DISP

DOOR SW

Ref. No.	Part No.	Description			Remark
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
< SWITCH >					
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			

*	A-4699-087-A	DISP BOARD, COMPLETE			

*	4-982-812-01	HOLDER (LED)			
*	4-983-363-01	HOLDER (FL)			
< CAPACITOR >					
C801	1-124-584-00	ELECT	100uF	20%	10V
C802	1-164-159-11	CERAMIC	0.1uF		50V
C803	1-162-282-31	CERAMIC	100PF	10%	50V
C804	1-162-282-31	CERAMIC	100PF	10%	50V
C805	1-162-294-31	CERAMIC	0.001uF	10%	50V
C806	1-164-159-11	CERAMIC	0.1uF		50V
C807	1-162-306-11	CERAMIC	0.01uF	20%	16V
< DIODE >					
D810	8-719-301-52	DIODE	SEL2810A-C (GROUP 1)		
D811	8-719-301-52	DIODE	SEL2810A-C (GROUP 2)		
D812	8-719-301-52	DIODE	SEL2810A-C (GROUP 3)		
D813	8-719-301-52	DIODE	SEL2810A-C (GROUP 4)		
D814	8-719-301-52	DIODE	SEL2810A-C (GROUP 5)		
D815	8-719-301-52	DIODE	SEL2810A-C (GROUP 6)		
D816	8-719-301-52	DIODE	SEL2810A-C (GROUP 7)		
D817	8-719-301-52	DIODE	SEL2810A-C (GROUP 8)		
D818	8-719-301-52	DIODE	SEL2810A-C (TIME/TEXT)		
D819	8-719-301-52	DIODE	SEL2810A-C (X-FADE)		
D820	8-719-046-44	DIODE	SEL5221S (POWER)		
< FLUORESCENT INDICATOR >					
FL801	1-517-565-11	INDICATOR TUBE, FLUORESCENT			
< IC >					
IC805	8-749-012-65	IC	M66004M5FP		
IC806	8-749-012-65	IC	M66004M5FP		
IC807	8-759-183-47	IC	M66310FP		
< TRANSISTOR >					
Q802	8-729-900-80	TRANSISTOR	DTC114ES		
< RESISTOR >					
R811	1-249-415-11	CARBON	680	5%	1/4W
R812	1-249-417-11	CARBON	1K	5%	1/4W
R813	1-249-419-11	CARBON	1.5K	5%	1/4W
R814	1-249-421-11	CARBON	2.2K	5%	1/4W

Ref. No.	Part No.	Description			Remark
R815	1-247-843-11	CARBON	3.3K	5%	1/4W
R816	1-249-427-11	CARBON	6.8K	5%	1/4W
R817	1-249-431-11	CARBON	15K	5%	1/4W
R820	1-247-807-31	CARBON	100	5%	1/4W
R821	1-249-434-11	CARBON	27K	5%	1/4W
R822	1-247-807-31	CARBON	100	5%	1/4W
R823	1-249-434-11	CARBON	27K	5%	1/4W
R824	1-247-807-31	CARBON	100	5%	1/4W
R825	1-247-807-31	CARBON	100	5%	1/4W
R826	1-247-807-31	CARBON	100	5%	1/4W
R827	1-249-429-11	CARBON	10K	5%	1/4W
R870	1-249-413-11	CARBON	470	5%	1/4W
R871	1-249-411-11	CARBON	330	5%	1/4W
R872	1-249-411-11	CARBON	330	5%	1/4W
R873	1-249-411-11	CARBON	330	5%	1/4W
R874	1-249-411-11	CARBON	330	5%	1/4W
R881	1-249-415-11	CARBON	680	5%	1/4W
R882	1-249-417-11	CARBON	1K	5%	1/4W
R883	1-249-419-11	CARBON	1.5K	5%	1/4W
R884	1-249-421-11	CARBON	2.2K	5%	1/4W
R885	1-247-843-11	CARBON	3.3K	5%	1/4W
R886	1-249-427-11	CARBON	6.8K	5%	1/4W
R887	1-249-431-11	CARBON	15K	5%	1/4W
< SWITCH >					
S811	1-554-303-21	SWITCH, TACTILE (X-FADE)			
S812	1-554-303-21	SWITCH, TACTILE (HIT LIST)			
S813	1-554-303-21	SWITCH, TACTILE (TIME/TEXT)			
S814	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S815	1-554-303-21	SWITCH, TACTILE (PROGRAM)			
S816	1-554-303-21	SWITCH, TACTILE (SHUFFLE)			
S817	1-554-303-21	SWITCH, TACTILE (CONTINUE)			
S818	1-554-303-21	SWITCH, TACTILE (POWER)			
S819	1-570-157-51	SWITCH, SLIDE (TIMER)			
S821	1-554-303-21	SWITCH, TACTILE (GROUP 1)			
S822	1-554-303-21	SWITCH, TACTILE (GROUP 2)			
S823	1-554-303-21	SWITCH, TACTILE (GROUP 3)			
S824	1-554-303-21	SWITCH, TACTILE (GROUP 4)			
S825	1-554-303-21	SWITCH, TACTILE (GROUP 8)			
S826	1-554-303-21	SWITCH, TACTILE (GROUP 7)			
S827	1-554-303-21	SWITCH, TACTILE (GROUP 6)			
S828	1-554-303-21	SWITCH, TACTILE (GROUP 5)			

*	1-661-464-11	DOOR SW BOARD			

< SWITCH >					
S802	1-762-386-11	SWITCH, PUSH (OPEN)			

ILLUMINATION

JACK

Ref. No.	Part No.	Description	Remark			
*	1-661-471-11	ILLUMINATION BOARD *****				
		< CONNECTOR >				
CN810	1-506-481-11	PIN, CONNECTOR 2P				
		< DIODE >				
D802	8-719-059-65	DIODE HLMF-KL05 (INSIDE ILLUMINATION)				
D803	8-719-059-65	DIODE HLMF-KL05 (INSIDE ILLUMINATION)				
D804	8-719-059-65	DIODE HLMF-KL05 (INSIDE ILLUMINATION)				
		< RESISTOR >				
R805	1-249-407-11	CARBON	150	5%	1/4W	F
R806	1-249-407-11	CARBON	150	5%	1/4W	F
R807	1-249-407-11	CARBON	150	5%	1/4W	F

*	A-4699-081-A	JACK BOARD, COMPLETE (CX270:US,CND) *****				
*	A-4699-082-A	JACK BOARD, COMPLETE (CX270:AEP,G) *****				
*	A-4699-091-A	JACK BOARD, COMPLETE (CX90ES) *****				
*	4-363-146-31	HEAT SINK, V.OUT				
*	4-962-200-01	PLATE (TR), GROUND				
	7-685-871-01	SCREW +BVTT 3X6 (S)				
		< CAPACITOR >				
C404	1-126-052-11	ELECT	100uF	20%	16V	
C416	1-126-101-11	ELECT	100uF	20%	16V	
C419	1-126-022-11	ELECT	47uF	20%	16V	
C420	1-164-159-11	CERAMIC	0.1uF		50V	
C470	1-164-159-11	CERAMIC	0.1uF		50V	
C471	1-164-159-11	CERAMIC	0.1uF		50V	
C473	1-162-286-31	CERAMIC	220PF	10%	50V	
C513	1-124-473-11	ELECT	1000uF	20%	10V	
C650	1-124-282-00	ELECT	22uF	20%	25V	
C660	1-130-467-00	MYLAR	470PF	5%	50V	
C750	1-124-282-00	ELECT	22uF	20%	25V	
C760	1-130-467-00	MYLAR	470PF	5%	50V	
C901	1-161-494-00	CERAMIC	0.022uF		25V	
C902	1-124-523-11	ELECT	4700uF	20%	16V	
C903	1-126-234-11	ELECT	2200uF	20%	16V	
C904	1-126-163-11	ELECT	4.7uF	20%	50V	
C905	1-126-163-11	ELECT	4.7uF	20%	50V	
C906	1-126-163-11	ELECT	4.7uF	20%	50V	
C907	1-124-997-11	ELECT	470uF	20%	10V	
C908	1-126-163-11	ELECT	4.7uF	20%	50V	
C909	1-126-063-11	ELECT	100uF	20%	63V	
C910	1-126-059-11	ELECT	10uF	20%	50V	

Ref. No.	Part No.	Description	Remark			
C911	1-164-159-11	CERAMIC 0.1uF 50V				
C912	1-124-997-11	ELECT 470uF 20% 10V				
C913	1-126-163-11	ELECT 4.7uF 20% 50V				
C914	1-126-163-11	ELECT 4.7uF 20% 50V				
△ C920	1-113-920-11	CERAMIC 0.0022uF 20% 250V				
		< CONNECTOR >				
CN413	1-770-385-11	CONNECTOR, BOARD TO BOARD 18P				
CN414	1-770-384-11	CONNECTOR, BOARD TO BOARD 16P				
CN415	1-770-383-11	CONNECTOR, BOARD TO BOARD 14P				
* CN504	1-568-951-11	PIN, CONNECTOR 2P				
CN903	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P				
△ CN904	1-540-057-11	OUTLET, AC (POLAR)(AC OUTLET) (CX90ES/CX270:US,CND)				
CN905	1-564-321-00	PIN, CONNECTOR 2P (CX270:AEP,G)				
CN906	1-564-321-00	PIN, CONNECTOR 2P (CX270:AEP,G)				
		< DIODE >				
D402	8-719-987-63	DIODE 1N4148M				
D403	8-719-109-85	DIODE RD5.1ES-B2				
D411	8-719-024-99	DIODE 11ES2-NTA2B				
D470	8-719-987-63	DIODE 1N4148M				
D901	8-719-210-21	DIODE 11EQS04				
D902	8-719-210-21	DIODE 11EQS04				
D903	8-719-210-21	DIODE 11EQS04				
D904	8-719-210-21	DIODE 11EQS04				
D905	8-719-024-99	DIODE 11ES2-NTA2B				
D906	8-719-110-13	DIODE RD9.1ESB2				
		< IC >				
IC502	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)				
IC901	8-759-061-65	IC LA5602				
IC902	8-759-061-65	IC LA5602				
IC903	8-759-633-42	IC M5293L				
IC904	8-759-605-00	IC M5F78M07L				
		< JACK >				
J301	1-770-720-11	JACK, PIN 4P (LINE IN/OUT)(CX270)				
J301	1-778-064-11	JACK, PIN 4P (LINE IN/OUT)(CX90ES)				
* J401	1-764-188-11	JACK (SMALL TYPE)(DIA. 3.5)(CONTROL A1)				
* J402	1-764-188-11	JACK (SMALL TYPE)(DIA. 3.5)(CONTROL A1)				
J403	1-774-227-11	JACK, PIN 1P (MONITOR OUT)				
		< COIL >				
L1	1-412-473-21	INDUCTOR 0uH				
L2	1-412-473-21	INDUCTOR 0uH				
L407	1-412-473-21	INDUCTOR 0uH				
L408	1-412-473-21	INDUCTOR 0uH				
L470	1-412-297-11	INDUCTOR 3.3uH				
△ L901	1-424-485-11	FILTER, LINE				

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JACK

JOG

KEYBOARD

Ref. No.	Part No.	Description	Remark			
< TRANSISTOR >						
Q470	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q901	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q902	8-729-119-76	TRANSISTOR	2SA1175-HFE			
< RESISTOR >						
R417	1-249-411-11	CARBON	330	5%	1/4W	
R456	1-249-429-11	CARBON	10K	5%	1/4W	
R470	1-249-429-11	CARBON	10K	5%	1/4W	
R471	1-249-429-11	CARBON	10K	5%	1/4W	
R472	1-249-425-11	CARBON	4.7K	5%	1/4W	F
R473	1-249-393-11	CARBON	10	5%	1/4W	F
R474	1-249-429-11	CARBON	10K	5%	1/4W	
R650	1-247-895-00	CARBON	470K	5%	1/4W	
R660	1-215-405-00	METAL	220	1%	1/4W	
R750	1-247-895-00	CARBON	470K	5%	1/4W	
R760	1-215-405-00	METAL	220	1%	1/4W	
R901	1-249-435-11	CARBON	33K	5%	1/4W	
R902	1-249-429-11	CARBON	10K	5%	1/4W	
R903	1-249-438-11	CARBON	56K	5%	1/4W	
R905	1-249-425-11	CARBON	4.7K	5%	1/4W	F
< SWITCH >						
S401	1-762-151-11	SWITCH, SLIDE (COMMAND MODE)				
< TRANSFORMER >						
△ T501	1-429-680-11	TRANSFORMER, POWER (CX90ES/CX270:US,CND)				
△ T501	1-429-681-11	TRANSFORMER, POWER (CX270:AEP,G)				

*	A-4699-088-A	JOG BOARD, COMPLETE (EXCEPT CX270: AEP,G)				

*	A-4699-530-A	JOG BOARD, COMPLETE (CX270: AEP, G)				

< CAPACITOR >						
C808	1-164-159-11	CERAMIC	0.1uF		50V	
C809	1-164-159-11	CERAMIC	0.1uF		50V	
C810	1-164-159-11	CERAMIC	0.1uF		50V	
(CX270: AEP,G)						
C811	1-124-584-00	ELECT	100uF	20%	10V	
< CONNECTOR >						
* CN811	1-568-865-11	SOCKET, CONNECTOR 23P				
< DIODE >						
D805	8-719-301-49	DIODE	SEL2810A-CD (■)			
D806	8-719-303-02	DIODE	SEL2510C-D (▷)			

Ref. No.	Part No.	Description	Remark			
< IC >						
IC804	8-759-373-49	IC NJL54H400				
< TRANSISTOR >						
Q803	8-729-900-89	TRANSISTOR DTC144ES				
< RESISTOR >						
R832	1-247-807-31	CARBON	100	5%	1/4W	
R833	1-247-807-31	CARBON	100	5%	1/4W	
R841	1-249-415-11	CARBON	680	5%	1/4W	F
R842	1-249-417-11	CARBON	1K	5%	1/4W	F
R843	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R851	1-249-415-11	CARBON	680	5%	1/4W	F
R852	1-249-417-11	CARBON	1K	5%	1/4W	F
R853	1-249-419-11	CARBON	1.5K	5%	1/4W	F
R854	1-249-421-11	CARBON	2.2K	5%	1/4W	F
R855	1-247-843-11	CARBON	3.3K	5%	1/4W	
R856	1-249-427-11	CARBON	6.8K	5%	1/4W	F
R862	1-249-415-11	CARBON	680	5%	1/4W	F
R863	1-249-407-11	CARBON	150	5%	1/4W	F
R864	1-249-429-11	CARBON	10K	5%	1/4W	
R865	1-249-429-11	CARBON	10K	5%	1/4W	
< SWITCH >						
RE801	1-762-717-11	SWITCH, JOG (DISC/CHARACTER)				
< SWITCH >						
S841	1-554-303-21	SWITCH, TACTILE (ENTER)				
S842	1-554-303-21	SWITCH, TACTILE (PLAYER SELECT)				
S843	1-554-303-21	SWITCH, TACTILE (INPUT)				
S844	1-554-303-21	SWITCH, TACTILE (SORT)				
S851	1-554-303-21	SWITCH, TACTILE (■)				
S852	1-554-303-21	SWITCH, TACTILE (■)				
S853	1-554-303-21	SWITCH, TACTILE (▷)				
S854	1-554-303-21	SWITCH, TACTILE (CLEAR)				
S855	1-554-303-21	SWITCH, TACTILE (CHECK)				
S856	1-554-303-21	SWITCH, TACTILE (▷▷)				
S857	1-554-303-21	SWITCH, TACTILE (<<)				

*	1-662-500-11	KEYBOARD BOARD				

< CAPACITOR >						
C820	1-164-159-11	CERAMIC	0.1uF		50V	
C821	1-164-159-11	CERAMIC	0.1uF		50V	
< CONNECTOR >						
* CN820	1-568-954-11	PIN, CONNECTOR 5P				

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KEYBOARD	L.MOTOR	L.SW	LUMINOUS	MAIN
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< DIODE >				< CAPACITOR >	
D821	8-719-109-85	DIODE RD5.1ES-B2		C002	1-126-101-11	ELECT 100uF	20% 16V
D822	8-719-109-85	DIODE RD5.1ES-B2		C301	1-163-038-91	CERAMIC CHIP 0.1uF	25V
D823	8-719-109-85	DIODE RD5.1ES-B2		C302	1-163-102-00	CERAMIC CHIP 24PF	5% 50V
		< JACK >		C303	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
J801	1-778-314-11	CONNECTOR, DIN (KEYBOARD JACK)		C304	1-163-005-11	CERAMIC CHIP 470PF	10% 50V
		< COIL >		C305	1-163-038-91	CERAMIC CHIP 0.1uF	25V
L801	1-424-122-11	FILTER, NOISE		C306	1-102-951-00	CERAMIC 15PF	5% 50V
L802	1-424-122-11	FILTER, NOISE		C307	1-102-961-00	CERAMIC 27PF	5% 50V
L803	1-424-122-11	FILTER, NOISE		C308	1-136-850-11	FILM 0.1uF	5% 63V
L804	1-424-122-11	FILTER, NOISE		C309	1-128-201-11	ELECT 100uF	20% 50V
		< BASE POST >		C310	1-126-052-11	ELECT 100uF	20% 50V
* LP801	1-690-880-31	LEAD (WITH CONNECTOR)		C311	1-126-022-11	ELECT 47uF	20% 16V
*****				C312	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< MOTOR >		C313	1-163-038-91	CERAMIC CHIP 0.1uF	25V
M802	A-4604-847-A	MOTOR ASSY (LOADING)				(CX90ES/CX270:US,CND)	
*****				C314	1-126-052-11	ELECT 100uF	20% 50V
		< SWITCH >				(CX90ES)	
		< DIODE >		C401	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< CAPACITOR >		C402	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
		< FILM >		C403	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
		< ELECT >		C405	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< CERAMIC >		C406	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< FILM >				(CX90ES/CX270:US,CND)	
		< ELECT >		C407	1-110-489-11	CAPACITOR 1F	5.5V
		< CERAMIC >		C408	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< FILM >		C409	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C410	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< CERAMIC >		C411	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
		< FILM >		C412	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C413	1-126-022-11	ELECT 47uF	20% 16V
		< CERAMIC >		C414	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< FILM >		C415	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C417	1-136-165-00	FILM 0.1uF	5% 50V
		< CERAMIC >		C421	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
		< FILM >		C422	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C424	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
		< CERAMIC >		C425	1-126-022-11	ELECT 47uF	20% 16V
		< FILM >		C430	1-126-022-11	ELECT 47uF	20% 16V
		< ELECT >		C431	1-126-022-11	ELECT 47uF	20% 16V
		< CERAMIC >		C432	1-136-165-00	FILM 0.1uF	5% 50V
		< FILM >		C433	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C434	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< CERAMIC >		C435	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< FILM >		C436	1-163-038-91	CERAMIC CHIP 0.1uF	25V
		< ELECT >		C441	1-136-165-00	FILM 0.1uF	5% 50V
		< CERAMIC >		C451	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
		< FILM >		C452	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
		< ELECT >		C453	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
		< CERAMIC >		C454	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
		< FILM >		C455	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C456	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C631	1-130-483-00	MYLAR	0.01uF	5%	50V
C480	1-163-038-91	CERAMIC CHIP	0.1uF		25V						(CX90ES)
C481	1-163-038-91	CERAMIC CHIP	0.1uF		25V	C632	1-130-483-00	MYLAR	0.01uF	5%	50V
											(CX90ES)
C482	1-163-038-91	CERAMIC CHIP	0.1uF		25V						
C490	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	C634	1-136-850-11	FILM	0.1uF	5%	63V
C491	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	C636	1-124-910-11	ELECT	47uF	20%	50V
C501	1-163-038-91	CERAMIC CHIP	0.1uF		25V						(CX90ES)
C502	1-126-022-11	ELECT	47uF	20%	16V	C700	1-163-038-91	CERAMIC CHIP	0.1uF		25V
						C701	1-124-122-11	ELECT	100uF	20%	50V
C503	1-163-038-91	CERAMIC CHIP	0.1uF		25V	C702	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C505	1-164-085-11	CERAMIC	0.001uF	10%	50V						
C506	1-141-227-00	CAP, TRIMMER	20PF (H SYNC)			C703	1-124-910-11	ELECT	47uF	20%	50V
C507	1-102-958-00	CERAMIC	20PF	5%	50V	C704	1-130-495-00	MYLAR	0.1uF	5%	50V
C508	1-102-852-91	CERAMIC	47PF	5%	50V	C705	1-126-059-11	ELECT	10uF	20%	50V
						C706	1-130-495-00	MYLAR	0.1uF	5%	50V
C509	1-102-518-11	CERAMIC	33PF	5%	50V	C707	1-126-059-11	ELECT	10uF	20%	50V
C510	1-141-227-00	CAP, TRIMMER	20PF								
			(OSD SCREEN WIDTH V SYNC)			C708	1-136-808-11	FILM	100PF	5%	100V
C511	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V						(CX270)
C512	1-126-059-11	ELECT	10uF	20%	50V	C709	1-130-487-00	MYLAR	0.022uF	5%	50V
C600	1-163-038-91	CERAMIC CHIP	0.1uF		25V						(CX90ES)
						C710	1-102-816-00	CERAMIC	120PF	5%	50V
C601	1-124-122-11	ELECT	100uF	20%	50V						(CX270)
C602	1-163-038-91	CERAMIC CHIP	0.1uF		25V	C710	1-102-973-00	CERAMIC	100PF	5%	50V
C603	1-124-910-11	ELECT	47uF	20%	50V						(CX90ES)
C604	1-130-495-00	MYLAR	0.1uF	5%	50V	C711	1-102-816-00	CERAMIC	120PF	5%	50V
C605	1-126-059-11	ELECT	10uF	20%	50V						(CX270)
C606	1-130-495-00	MYLAR	0.1uF	5%	50V	C711	1-102-973-00	CERAMIC	100PF	5%	50V
C607	1-126-059-11	ELECT	10uF	20%	50V						(CX90ES)
C608	1-136-808-11	FILM	100PF	5%	100V	C712	1-106-343-00	MYLAR	1000PF	5%	200V
					(CX270)	C713	1-130-484-00	MYLAR	0.012uF	5%	50V
C609	1-130-487-00	MYLAR	0.022uF	5%	50V	C714	1-136-802-11	FILM	0.015uF	5%	100V
					(CX90ES)	C715	1-124-910-11	ELECT	47uF	20%	50V
C610	1-102-816-00	CERAMIC	120PF	5%	50V						
					(CX270)	C720	1-130-495-00	MYLAR	0.1uF	5%	50V
											(CX90ES)
C610	1-102-973-00	CERAMIC	100PF	5%	50V	C721	1-124-122-11	ELECT	100uF	20%	50V
					(CX90ES)						(CX90ES)
C611	1-102-816-00	CERAMIC	120PF	5%	50V	C722	1-126-059-11	ELECT	10uF	20%	50V
					(CX270)						(CX90ES)
C611	1-102-973-00	CERAMIC	100PF	5%	50V	C723	1-126-059-11	ELECT	10uF	20%	50V
					(CX90ES)						(CX90ES)
C612	1-106-343-00	MYLAR	1000PF	5%	200V	C724	1-126-059-11	ELECT	10uF	20%	50V
C613	1-130-484-00	MYLAR	0.012uF	5%	50V						(CX90ES)
C614	1-136-802-11	FILM	0.015uF	5%	100V	C725	1-124-910-11	ELECT	47uF	20%	50V
C615	1-124-910-11	ELECT	47uF	20%	50V						(CX90ES)
C620	1-130-495-00	MYLAR	0.1uF	5%	50V	C726	1-136-802-11	FILM	0.015uF	5%	100V
					(CX90ES)						(CX90ES)
C621	1-124-122-11	ELECT	100uF	20%	50V	C727	1-136-802-11	FILM	0.015uF	5%	100V
					(CX90ES)						(CX90ES)
C623	1-126-059-11	ELECT	10uF	20%	50V	C728	1-126-059-11	ELECT	10uF	20%	50V
					(CX90ES)						(CX90ES)
						C730	1-124-122-11	ELECT	100uF	20%	50V
C626	1-124-910-11	ELECT	47uF	20%	50V						(CX90ES)
					(CX90ES)						
C627	1-136-802-11	FILM	0.015uF	5%	100V	C731	1-130-483-00	MYLAR	0.01uF	5%	50V
					(CX90ES)						(CX90ES)
C629	1-124-910-11	ELECT	47uF	20%	50V	C732	1-130-483-00	MYLAR	0.01uF	5%	50V
					(CX90ES)						(CX90ES)

MAIN

Ref. No.	Part No.	Description	Remark
C734	1-136-850-11	FILM 0.1uF 5% 63V	
< CONNECTOR >			
* CN301	1-568-839-11	SOCKET, CONNECTOR 23P	
CN304	1-506-468-11	PIN, CONNECTOR 3P	
* CN305	1-568-955-11	PIN, CONNECTOR 6P	
* CN306	1-568-951-11	PIN, CONNECTOR 2P	
* CN308	1-568-951-11	PIN, CONNECTOR 2P	
* CN403	1-568-839-11	SOCKET, CONNECTOR 23P	
* CN404	1-568-954-11	PIN, CONNECTOR 5P	
CN405	1-770-408-11	CONNECTOR, BOARD TO BOARD 14P	
CN406	1-770-410-11	CONNECTOR, BOARD TO BOARD 18P	
CN407	1-770-409-11	CONNECTOR, BOARD TO BOARD 16P	
< DIODE >			
D301	8-719-941-86	DIODE DAN202U	
D302	8-719-941-86	DIODE DAN202U	
D401	8-719-941-86	DIODE DAN202U	
D404	8-719-941-86	DIODE DAN202U	
D405	8-719-941-86	DIODE DAN202U	
D406	8-719-941-86	DIODE DAN202U	
D407	8-719-941-86	DIODE DAN202U	
D408	8-719-977-00	DIODE DTZ5.1C	
D410	8-719-941-86	DIODE DAN202U	
D412	8-719-941-86	DIODE DAN202U	
D413	8-719-941-86	DIODE DAN202U	
D414	8-719-941-86	DIODE DAN202U	
D415	8-719-941-86	DIODE DAN202U	
D416	8-719-941-86	DIODE DAN202U	
D911	8-719-053-18	DIODE 1SR154-400TE-25	
< GROUND TERMINAL >			
* EB603	1-537-738-21	TERMINAL, EARTH	
< IC >			
IC301	8-759-604-90	IC M5F7907L	
IC302	8-759-361-58	IC CXA8055M (CX90ES)	
IC303	8-759-370-62	IC CXD8505BQ	
IC401	8-759-426-60	IC MB90677-TTX1022	
IC402	8-759-926-66	IC SN74HC373ANS	
IC403	8-759-926-11	IC SN74HC138ANS	
IC404	8-759-374-72	IC LC35256AM-10	
IC405	8-759-425-24	IC LE28C1001M-12	
IC406	8-759-430-89	IC LC372100PM-E42	
IC407	8-759-425-25	IC MB90095-OEM166	
IC408	8-759-634-51	IC M5218AP	
IC409	8-759-822-38	IC LA6510	
IC410	8-759-925-74	IC SN74HC04ANS	
IC411	8-759-925-74	IC SN74HC04ANS	
IC601	8-759-712-02	IC NJM2114D	
IC602	8-759-602-83	IC M5238P (CX90ES)	
IC603	8-759-900-72	IC NE5532P	

Ref. No.	Part No.	Description	Remark
IC701	8-759-712-02	IC NJM2114D	
IC702	8-759-602-83	IC M5238P (CX90ES)	
IC703	8-759-900-72	IC NE5532P	
< COIL >			
L6	1-414-234-11	INDUCTOR, FERRITE BEAD	
L7	1-414-234-11	INDUCTOR, FERRITE BEAD	
L8	1-414-234-11	INDUCTOR, FERRITE BEAD	
L301	1-410-375-11	INDUCTOR CHIP 3.3uH	
L302	1-410-375-11	INDUCTOR CHIP 3.3uH	
L303	1-414-234-11	INDUCTOR, FERRITE BEAD	
L304	1-410-379-31	INDUCTOR CHIP 6.8uH	
L401	1-414-234-11	INDUCTOR, FERRITE BEAD	
L402	1-414-234-11	INDUCTOR, FERRITE BEAD	
L403	1-414-234-11	INDUCTOR, FERRITE BEAD	
L404	1-414-234-11	INDUCTOR, FERRITE BEAD	
L405	1-414-234-11	INDUCTOR, FERRITE BEAD	
L406	1-414-234-11	INDUCTOR, FERRITE BEAD	
L460	1-410-375-11	INDUCTOR CHIP 3.3uH	
L501	1-410-385-11	INDUCTOR CHIP 22uH	
< TRANSISTOR >			
Q301	8-729-113-66	TRANSISTOR FN1L4M-M31	
Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q402	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q403	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q404	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q405	8-729-201-27	TRANSISTOR 2SC2715-Y	
Q601	8-729-231-55	TRANSISTOR 2SC2878-AB	
Q701	8-729-231-55	TRANSISTOR 2SC2878-AB	
< RESISTOR >			
R1	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R2	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R3	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R4	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R5	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R6	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R7	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R8	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R9	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R10	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R11	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R12	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R13	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R14	1-216-295-91	CONDUCTOR, CHIP(2012)(CX270)	
R15	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R16	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R17	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R18	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R19	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	
R20	1-216-295-91	CONDUCTOR, CHIP(2012)(CX90ES)	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R30	1-216-295-91	CONDUCTOR, CHIP(2012)	(CX90ES/CX270:US,CND)			R439	1-220-227-11	METAL GLAZE	1.2	10%	1/4W
R301	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R440	1-220-227-11	METAL GLAZE	1.2	10%	1/4W
R302	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R441	1-216-001-00	METAL CHIP	10	5%	1/10W
R303	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R442	1-216-001-00	METAL CHIP	10	5%	1/10W
R304	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R443	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R305	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R444	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R306	1-216-037-00	METAL CHIP	330	5%	1/10W	R445	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W	R446	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R309	1-216-033-00	METAL CHIP	220	5%	1/10W	R447	1-216-073-00	METAL CHIP	10K	5%	1/10W
R310	1-216-121-91	METAL GLAZE	1M	5%	1/10W	R448	1-216-093-00	METAL CHIP	68K	5%	1/10W
R311	1-216-097-91	METAL GLAZE	100K	5%	1/10W	R449	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R314	1-216-113-00	METAL CHIP	470K	5%	1/10W	R450	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R315	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R451	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R316	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R452	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R317	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R453	1-216-001-00	METAL CHIP	10	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W	R454	1-216-025-91	METAL GLAZE	100	5%	1/10W
R401	1-216-073-00	METAL CHIP	10K	5%	1/10W	R455	1-216-021-00	METAL CHIP	68	5%	1/10W
R402	1-216-073-00	METAL CHIP	10K	5%	1/10W	R457	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R403	1-216-049-91	METAL GLAZE	1K	5%	1/10W	R458	1-216-295-91	CONDUCTOR, CHIP(2012)			
R404	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R459	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R460	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-073-00	METAL CHIP	10K	5%	1/10W	R461	1-216-073-00	METAL CHIP	10K	5%	1/10W
R408	1-216-073-00	METAL CHIP	10K	5%	1/10W	R462	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R409	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R463	1-216-295-91	CONDUCTOR, CHIP(2012)			
R410	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R464	1-216-073-00	METAL CHIP	10K	5%	1/10W (CX270:AEP,G)
R411	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R490	1-216-105-91	METAL GLAZE	220K	5%	1/10W
R412	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R491	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R413	1-220-251-11	METAL GLAZE	33	5%	1/2W	R492	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R414	1-216-073-00	METAL CHIP	10K	5%	1/10W	R493	1-216-105-91	METAL GLAZE	220K	5%	1/10W
R415	1-216-073-00	METAL CHIP	10K	5%	1/10W	R494	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R416	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R605	1-208-812-11	METAL CHIP	18K	0.50%	1/10W
R418	1-216-073-00	METAL CHIP	10K	5%	1/10W	R606	1-208-812-11	METAL CHIP	18K	0.50%	1/10W
R419	1-216-073-00	METAL CHIP	10K	5%	1/10W	R607	1-208-812-11	METAL CHIP	18K	0.50%	1/10W (CX90ES)
R420	1-216-073-00	METAL CHIP	10K	5%	1/10W	R607	1-208-814-11	METAL CHIP	22K	0.50%	1/10W (CX270)
R422	1-216-073-00	METAL CHIP	10K	5%	1/10W	R608	1-208-812-11	METAL CHIP	18K	0.50%	1/10W (CX90ES)
R423	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R608	1-208-814-11	METAL CHIP	22K	0.50%	1/10W (CX270)
R424	1-216-101-00	METAL CHIP	150K	5%	1/10W	R609	1-216-650-11	METAL CHIP	910	0.5%	1/10W
R425	1-216-078-00	METAL GLAZE	16K	5%	1/10W	R610	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R426	1-216-078-00	METAL GLAZE	16K	5%	1/10W	R611	1-218-764-11	METAL CHIP	330K	0.50%	1/10W
R427	1-220-227-11	METAL GLAZE	1.2	10%	1/4W	R612	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R428	1-216-073-00	METAL CHIP	10K	5%	1/10W	R613	1-216-627-11	METAL CHIP	100	0.5%	1/10W
R429	1-216-077-00	METAL CHIP	15K	5%	1/10W	R616	1-216-646-11	METAL CHIP	620	0.5%	1/10W
R430	1-220-227-11	METAL GLAZE	1.2	10%	1/4W	R619	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R431	1-216-073-00	METAL CHIP	10K	5%	1/10W	R620	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R432	1-216-101-00	METAL CHIP	150K	5%	1/10W	R620	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R433	1-216-077-00	METAL CHIP	15K	5%	1/10W	R621	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R434	1-216-065-00	METAL CHIP	4.7K	5%	1/10W						
R435	1-216-097-91	METAL GLAZE	100K	5%	1/10W						
R436	1-216-097-91	METAL GLAZE	100K	5%	1/10W						
R437	1-216-103-00	METAL CHIP	180K	5%	1/10W						
R438	1-216-103-00	METAL CHIP	180K	5%	1/10W						

MAIN	OUTLET BOARD	RAY-CATCHER
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Ref. No.	Part No.	Description			Remark
R621	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R622	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R622	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R623	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R623	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R624	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R625	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R626	1-208-774-11	METAL CHIP	470	0.50%	1/10W (CX90ES)
R630	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R631	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R632	1-216-637-11	METAL CHIP	270	0.5%	1/10W (CX90ES)
R633	1-216-637-11	METAL CHIP	270	0.5%	1/10W (CX90ES)
R634	1-208-806-11	METAL CHIP	10K	0.50%	1/10W (CX90ES)
R635	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W (CX90ES)
R636	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R637	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R638	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R639	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R640	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R705	1-208-812-11	METAL CHIP	18K	0.50%	1/10W
R706	1-208-812-11	METAL CHIP	18K	0.50%	1/10W
R707	1-208-812-11	METAL CHIP	18K	0.50%	1/10W (CX90ES)
R707	1-208-814-11	METAL CHIP	22K	0.50%	1/10W (CX270)
R708	1-208-812-11	METAL CHIP	18K	0.50%	1/10W (CX90ES)
R708	1-208-814-11	METAL CHIP	22K	0.50%	1/10W (CX270)
R709	1-216-650-11	METAL CHIP	910	0.5%	1/10W
R710	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R711	1-218-764-11	METAL CHIP	330K	0.50%	1/10W
R712	1-216-645-11	METAL CHIP	560	0.5%	1/10W
R713	1-216-627-11	METAL CHIP	100	0.5%	1/10W
R716	1-216-646-11	METAL CHIP	620	0.5%	1/10W
R719	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R720	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R720	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R721	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)

Ref. No.	Part No.	Description			Remark
R721	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R722	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R722	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R723	1-216-635-11	METAL CHIP	220	0.5%	1/10W (CX90ES)
R723	1-216-687-11	METAL CHIP	33K	0.5%	1/10W (CX270)
R724	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R725	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R730	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R731	1-216-603-11	METAL CHIP	10	0.5%	1/10W (CX90ES)
R732	1-216-637-11	METAL CHIP	270	0.5%	1/10W (CX90ES)
R733	1-216-637-11	METAL CHIP	270	0.5%	1/10W (CX90ES)
R735	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W (CX90ES)
R736	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R737	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R738	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R739	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R740	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
< VARIABLE RESISTOR >					
RV401	1-241-787-11	RES,ADJ CARBON	47K		
< VIBRATOR >					
X301	1-579-314-11	VIBRATOR, CRYSTAL (22MHz)			
X401	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			
X501	1-767-216-11	VIBRATOR, CRYSTAL (17.7MHz)			(CX270:AEP,G)
X501	1-767-217-11	VIBRATOR, CRYSTAL (14.3MHz)			(CX90ES/CX270:US,CND)

*	1-662-574-11	OUTLET BOARD (CX270:AEP,G)			*****
< CONNECTOR >					
CN908	1-696-980-11	LEAD (WITH CONNECTOR)			(CX270:AEP,G)
△CN909	1-526-794-11	OUTLET, AC (AC OUTLET)			(CX270:AEP,G)

*	1-661-469-11	RAY-CATCHER BOARD			*****
*	4-985-300-01	HOLDER (P-T)			

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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RAY-CATCHER

SW

T.MOTOR

T.SENS

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q801	8-729-926-31	PHOTO TRANSISTOR PT483F1S	

*	1-662-505-11	SW BOARD (CX270:AEP,G)	

		< CONNECTOR >	
△CN907	1-696-980-11	LEAD (WITH CONNECTOR)(CX270:AEP,G)	
		< SWITCH >	
△S410	1-762-794-11	SWITCH, POWER (MAIN POWER)(CX270:AEP,G)	

*	1-661-466-11	T.MOTOR BOARD	

		< MOTOR >	
M801	A-4604-847-A	MOTOR ASSY (TABLE)	

*	1-661-470-11	T.SENS BOARD	

		< CONNECTOR >	
CN802	1-506-481-11	PIN, CONNECTOR 2P	
CN803	1-506-481-11	PIN, CONNECTOR 2P	
		< IC >	
IC801	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
IC802	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
IC803	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
		< RESISTOR >	
R801	1-249-416-11	CARBON 820 5% 1/4W F	
R802	1-249-416-11	CARBON 820 5% 1/4W F	
R803	1-249-416-11	CARBON 820 5% 1/4W F	
R804	1-249-415-11	CARBON 680 5% 1/4W F	

		MISCELLANEOUS	

4	1-773-183-11	WIRE (FLAT TYPE)(23 CORE)	
5	1-777-398-11	WIRE (FLAT TYPE)(23 CORE)	
304	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
△306	8-848-376-01	OPTICAL PICK-UP BLOCK KSS-213B/S-N	
△CN909	1-526-794-11	OUTLET, AC (CX270:AEP,G)	
△CNP901	1-575-042-21	CORD, POWER (CX90ES/CX270:US,CND)	
△CNP901	1-575-651-21	CORD, POWER (CX270:AEP,G)	

Ref. No.	Part No.	Description	Remark
FL801	1-517-565-11	INDICATOR TUBE, FLUORESCENT	
M101	X-2626-234-1	T.T CHAISIS ASSY (MG)(K)(SPINDLE)	
M102	X-2625-769-1	MOTOR GEAR ASSY (MB)(RP)(SLED)	
M801	A-4604-847-A	MOTOR ASSY (TABLE)	
M802	A-4604-847-A	MOTOR ASSY (LOADING)	
△T501	1-429-680-11	TRANSFORMER, POWER (CX90ES/CX270:US,CND)	
△T501	1-429-681-11	TRANSFORMER, POWER (CX270:AEP,G)	

		ACCESSORIES & PACKING MATERIALS	

1-473-808-11		REMOTE COMMANDER (RM-DX270)	
1-558-271-11		CORD, CONNECTION (AUDIO 108cm)	
1-751-619-11		CORD, CONNECTION (VIDEO 1.5m)	
1-777-172-11		CORD, CONNECTION (CONTROL-A1)(CND)	
3-810-765-11		MANUAL,COMMONNESS INSTRUCTION (CONTROL-A1)(ENGLISH)(US)	
3-810-765-21		MANUAL,COMMONNESS INSTRUCTION (FOR CONTROL-A1) (ENGLISH,FRENCH,GERMAN,SPANISH,DUTCH, SWEDISH,ITALIAN,PORTUGUESE,CHINESE) (CX90ES:CND/CX270:CND,AEP,G)	
3-856-767-11		MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH,SWEDISH) (CX90ES:CND/CX270:CND,AEP,G)	
3-856-767-21		MANUAL, INSTRUCTION (ENGLISH) (CX90ES:US/CX270:US)	
3-856-767-31		MANUAL, INSTRUCTION (GERMAN,DUTCH,ITALIAN,PORTUGUESE) (CX270:AEP,G)	
4-983-364-01		CAP (J)	
4-984-086-01		BOOKLET (100)	
4-988-173-01		COVER BATTERY (RM-DX270)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

CDP-CX90/CX270

Ref. No.	Part No.	Description	Remark
***** HARDWARE LIST *****			
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
#4	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#5	7-685-871-09	SCREW +BVTT 3X6 (S)	
#6	7-682-947-01	SCREW +PSW 3X6	
#7	7-682-548-04	SCREW +BVTT 3X8 (S)	
#8	7-624-111-04	STOP RING 7.0, TYPE -E	
#9	7-624-106-04	STOP RING 3.0, TYPE -E	
#10	7-621-772-20	SCREW +B 2X5	
#11	7-682-552-09	SCREW +B 3X16	
#12	7-621-775-00	SCREW +B 2.6X3	
#13	7-621-772-30	SCREW +B 2X6	
#15	7-624-109-04	STOP RING 5.0, TYPE -E	
#16	7-621-775-20	SCREW +B 2.6X5	
#17	7-621-255-15	SCREW +P 2X3	
#18	7-682-547-04	+B 3X6	

CDP-CX90ES/CX270

SONY®

SERVICE MANUAL

US Model
Canadian Model

CDP-CX90ES/CX270

AEP Model

CDP-CX270

SUPPLEMENT-1

File this supplement with the service manual.

Subject : 1. CORRECTION
2. CD-TEXT TEST DISC
3. PARTS CHANGED
4. BOARD CHANGED
5. BOARD CHANGE DEPENDING ON THE CHANGE OF IC804

(ECN-CD601997)

1. CORRECTION

• Correct your service manual as shown below.

✖ : indicates corrected portion.

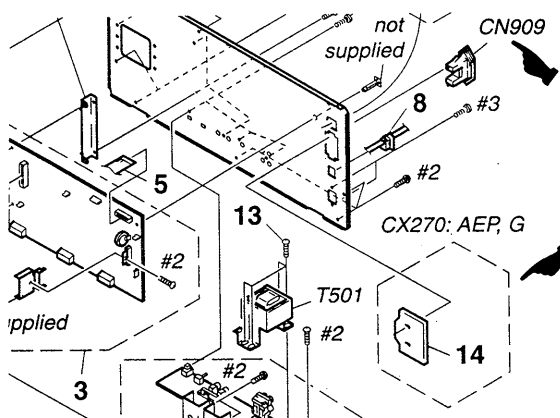
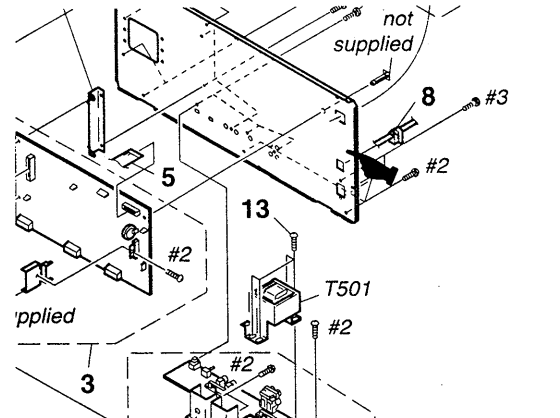
Page	INCORRECT	CORRECT
19	Sequence of Aging Mode <pre> graph TD 1[1. Disc change] --> 2[2. Load in] 2 --> 3[3. TOC read] 3 --> 4[4. Access of last track] 4 --> 5[5. 3 second playback] 5 --> 6[6. Access of first track] 6 --> 7[7. 3 second playback] 7 --> 8[8. Load out] 8 --> 1 </pre> Order of Disc Change (1 cycle takes 3 minutes) <pre> graph TD 1[1. No. 40] --> 2[2. No. 120] 2 --> 3[3. No. 80] 3 --> 4[4. No. 200] 4 --> 5[5. No. 180] 5 --> 1 </pre>	Sequence of Aging Mode <pre> graph TD 1[1. Disc change] --> 2[2. Load in] 2 --> 3[3. TOC read] 3 --> 4[4. Access of last track] 4 --> 5[5. 3 second playback] 5 --> 6[6. Access of first track] 6 --> 7[7. 3 second playback] 7 --> 8[8. Load out] 8 --> 1 </pre> Order of Disc Change (1 cycle takes 3 minutes) <pre> graph TD 1[1. No. 40] --> 2[2. No. 120] 2 --> 3[3. No. 80] 3 --> 4[4. No. 200] 4 --> 5[5. No. 160] 5 --> 1 </pre>
20	Aging Method 1. Turn ON the power of the unit. Open the front cover. 2. Press the AGING START button of the remote commander for aging mode (J-2501-123-A). 3. When the disc set mode is set, the ▷ and ■ LEDs blink. 4. Rotate the JOG dial. The slits (No. 40, 80, 120, 160, 200) for setting the discs will come forward. Insert the discs into these slits. Do not set the discs in other slits. 5. Set whether the self-protection function during errors is equipped with the unit. Press the REPEAT button. If "REPEAT" is displayed on the Fluorescent indicator tube, it means the function is provided. If "REPEAT" is not displayed, it means the function is not provided.	Aging Method 1. Change the COMMAND MODE switch (S501) on set to CD1. 2. Turn ON the power of the unit. Open the front cover. 3. Press the AGING START button of the remote commander for aging mode (J-2501-123-A). 4. When the disc set mode is set, the ▷ and ■ LEDs blink. 5. Rotate the JOG dial. The slits (No. 40, 80, 120, 160, 200) for setting the discs will come forward. Insert the discs into these slits. Do not set the discs in other slits. 6. Set whether the self-protection function during errors is equipped with the unit. Press the REPEAT button. If "REPEAT" is displayed on the Fluorescent indicator tube, it means the function is provided. If "REPEAT" is not displayed, it means the function is not provided.
29	[Disc Sensor Adjustment] Waveform 3:	[Disc Sensor Adjustment] Waveform 3:

✖ : indicates corrected portion.

Page	INCORRECT	CORRECT
56	[MAIN BOARD] Location P-Q, 8-10	[MAIN BOARD] Location P-Q, 8-10
57	[MAIN BOARD] Location E-G, 14-16	[MAIN BOARD] Location E-G, 14-16
59	[OUTLET BOARD], [JACK BOARD] Location L-O, 34-36	[OUTLET BOARD], [JACK BOARD] Location L-O, 34-36

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
65	*** EXPLODED VIEWS *** * 14 1-662-574-11 OUTLET BOARD (CX270: AEP, G) Δ CN909 1-526-794-11 OUTLET, AC (CX270: AEP, G) 				*** EXPLODED VIEWS *** NOT USED NOT USED 			
74	*** ELECTRICAL PARTS LIST *** *** JACK BOARD *** < CONNECTOR > CN904 1-540-057-11 OUTLET, AC (POLAR) (AC OUTLET) (CX90ES/CX270: US, CND) CN905 1-564-321-00 PIN, CONNECTOR 2P (CX270: AEP, G)				*** ELECTRICAL PARTS LIST *** *** JACK BOARD *** _____ _____			
75	*** JOG BOARD *** _____				*** JOG BOARD *** < BASE POST > LP802 1-690-880-31 LEAD (WITH CONNECTOR)			
79	*** MAIN BOARD *** _____				*** MAIN BOARD *** < RESISTOR > R421 1-216-057-00 METAL CHIP 2.2K 5% 1/10W			
80	*** OUTLET BOARD *** 1-662-574-11 OUTLET BOARD (CX270: AEP, G) < CONNECTOR > CN908 1-696-980-11 LEAD (WITH CONNECTOR) (CX270: AEP, G) Δ CN909 1-526-794-11 OUTLET, AC (AC OUTLET) (CX270: AEP, G)				*** OUTLET BOARD *** _____ _____			
82	*** ACCESSORIES & PACKING MATERIALS *** _____ *** HARDWARE LIST *** #18 7-682-547-04 SCREW +B3x6 _____				*** ACCESSORIES & PACKING MATERIALS *** * 4-983-803-01 CUSHION (CX270) *** HARDWARE LIST *** #18 7-682-547-04 SCREW +B3x6 (CX270) #18 7-682-547-09 SCREW +B3x6 (CX90ES)			

• Abbreviation
CND : Canadian model
G : German model

2. CD-TEXT TEST DISC

This unit is able to display the test data (character information) written in the CD on its fluorescent indicator tube.

The CD-TEXT TEST DISC (TGCS-313:J-2501-126-A) is used for checking the display.

To check, perform the following procedure.

Checking Method:

1. Turn ON the power, set the disc on the disc table with the side labeled as "test disc" as the right side, close the front cover, and chuck the disc.
2. The following will be displayed on the fluorescent indicator tube.

Display : Main Artist Test

3. Press the  button and play back the disc.
4. The following will be displayed on the fluorescent indicator tube.

Display : 1kHz/0 dB/ L&R

5. Press the  and  buttons to switch the track. The text data of each track will be displayed.

For details of the displayed contents for each track, refer to "Table 1 : CD-TEXT TEST DISC TEXT Data Contents" and "Table : 2 CD-TEXT TEST DISC Recorded Contents and Display".

Restrictions in CD-TEXT Display

In this unit, some special characters will not be displayed properly. These will be displayed as a space or a character resembling it. For details, refer to "Table 2 : CD-TEXT DISC Recorded Contents and Display".

Table 1 : CD-TEXT TEST DISC TEXT Data Contents (TRACKS No. 1 to 41:Normal Characters)

TRACK No.	Displayed Contents	TRACK No.	Displayed Contents
1	1kHz/0dB/L&R	22	1kHz/-90dB/L&R
2	20Hz/0dB/L&R	23	Infinity Zero w/o emphasis//L&R
3	40Hz/0dB/L&R	24	Infinity Zero with emphasis//L&R
4	100Hz/0dB/L&R	25	400Hz+7kHz(4:1)/0dB/L&R
5	200Hz/0dB/L&R	26	400Hz+7kHz(4:1)/-10dB/L&R
6	500Hz/0dB/L&R	27	19kHz+20kHz(1:1)/0dB/L&R
7	1kHz/0dB/L&R	28	19kHz+20kHz(1:1)/-10dB/L&R
8	5kHz/0dB/L&R	29	100Hz/0dB/L*
9	7kHz/0dB/L&R	30	1kHz/0dB/L*
10	10kHz/0dB/L&R	31	10kHz/0dB/L*
11	16kHz/0dB/L&R	32	20kHz/0dB/L*
12	18kHz/0dB/L&R	33	100Hz/0dB/R*
13	20kHz/0dB/L&R	34	1kHz/0dB/R*
14	1kHz/0dB/L&R	35	10kHz/0dB/R*
15	1kHz/-1dB/L&R	36	20kHz/0dB/R*
16	1kHz/-3dB/L&R	37	100Hz Squer Wave//L&R
17	1kHz/-6dB/L&R	38	1kHz Squer Wave//L&R
18	1kHz/-10dB/L&R	39	1kHz w/emphasis/-0.37dB/L&R
19	1kHz/-20dB/L&R	40	5kHz w/emphasis/-4.53dB/L&R
20	1kHz/-60dB/L&R	41	16kHz w/emphasis/-9.04dB/L&R
21	1kHz/-80dB/L&R		

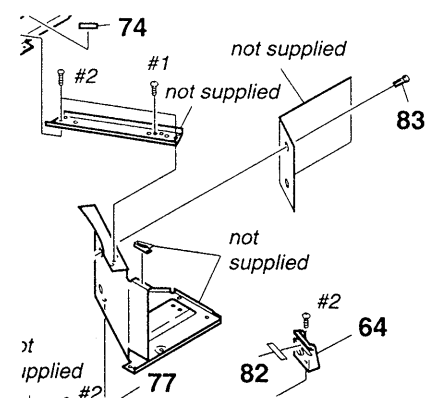
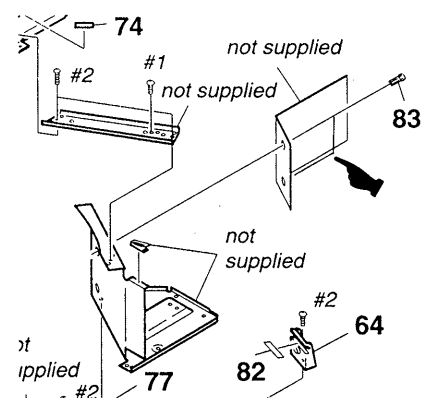
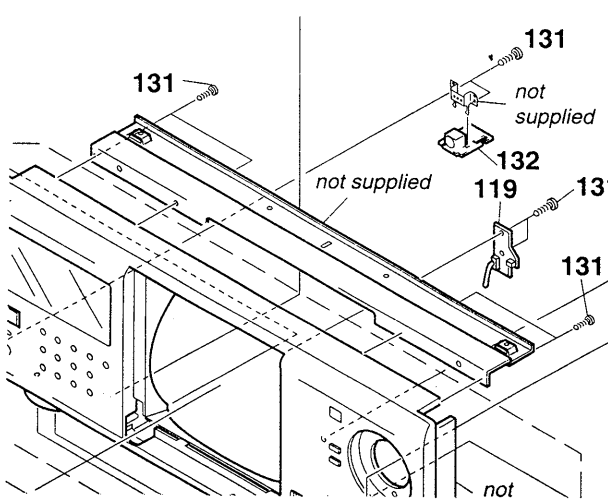
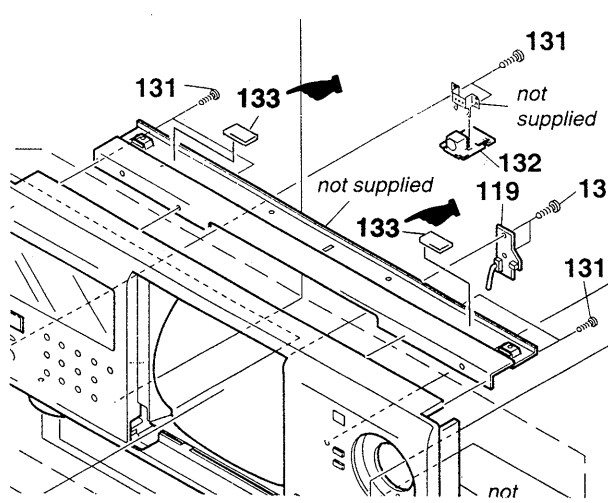
NOTE : The contents of Track No. 1 to 41 are the same as those of the current TEST DISC-their titles are displayed.

Table 2: CD-TEXT TEST DISC Recorded Contents and Display
(In this unit, some special characters cannot be displayed. This is no a fault.)

TRACK No.	Recorded contents	Display
42	! " # \$ % & ' (21h to 27h) 1kHz 0dB L&R	← All the same
43	() * + , - . / (28h to 2Fh)	← All the same
44	0 1 2 3 4 5 6 7 (30h to 37Fh)	← All the same
45	8 9 : ; < = > ? (38h to 3Fh)	← All the same
46	@ A B C D E F G (40h to 47Fh)	← All the same
47	H I J K L M N O (48h to 4Fh)	← All the same
48	P Q R S T U V W (50h to 57Fh)	← All the same
49	X Y Z [¥] ^ _ (58h to 5Fh)	X Y Z [\] ^ _ (58....
50	` a b c d e f g (60h to 67Fh)	← All the same
51	h i j k l m n o (68h to 6Fh)	← All the same
52	p q r s t u v w (70h to 77Fh)	← All the same
53	x y z { } ~ ■ (78h to 7Fh)	x y z { } ~ (78.... ■ is not displayed
54	▯ i ¢ £ ¤ ¥ ¦ § (A0h to A7h) 8859-1	(A0.... All not displayed
55	♪ © ª « ¬ ® ¯ (A8h to AFh)	(A8.... All not displayed
56	• ± ² ³ ´ µ ¶ • (B0h to B7h)	(B0.... All not displayed
57	† † ¨ ¯ ¼ ½ ¾ ¿ (B8h to BFh)	(B8.... All not displayed
58	À Á Â Ã Ä Å Æ Ç (C0h to C7Fh)	A A A A A A C (C0.... Æ is not displayed
59	È É Ê Ë Ì Í Î Ï (C8h to CFh)	E E E E I I I I (C8
60	Ð Ñ Ò Ó Ô Õ Ö × (D0h to D7Fh)	D N O O O O O (D0.... × is not displayed
61	Ø Ù Ú Û Ü Ý Þ ß (D8h to DFh)	O U U U U Y (D8.... Þ ß are not displayed
62	à á â ã ä å æ ç (E0h to E7Fh)	a a a a a a c (E0.... æ is not displayed
63	è é ê ë ì í î ï (E8h to FFh)	e e e e i i i i (E8....
64	ð ñ ò ó ô õ ö ÷ (F0h to F7Fh)	d n o o o o o (F0.... ÷ is not displayed
65	ø ù ú û ü ý þ ÿ (F8h to FFFh)	o u u u u y y (F8.... þ is not displayed
66	No.66	← All the same
67	No.67	← All the same
to	to	to
99	No.99	← All the same

3. PARTS CHANGED

 : indicates changed portion.

Page	FORMER				NEW			
	Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	*** EXPLODED VIEWS ***				*** EXPLODED VIEWS ***			
65	15	3-704-515-01	SCREW (BV/RING)		15	3-704-515-01	SCREW (BV/RING) (CX270)	
					15	3-704-515-11	SCREW (BV/RING) (CX90ES)	
66	* 74	3-378-433-01	CUSHION, SARANET		* 74	3-378-434-01	CUSHION, SARANET	
								
67					133	4-685-553-21	CUSHION	
								
68	157	4-982-854-01	HOLDER (DISC A)		157	4-988-143-01	HOLDER (DISC A2)	
74	*** ELECTRICAL PARTS LIST *** *** JACK BOARD *** 4-363-146-31 HEAT SINK, V.OUT				*** ELECTRICAL PARTS LIST *** *** JACK BOARD *** 4-363-146-51 HEAT SINK, V.OUT			
75	*** JOG BOARD *** < DIODE > D805 8-719-301-49 DIODE SEL2810A-CD (■■)				*** JOG BOARD *** < DIODE > D805 8-719-313-45 DIODE SEL6810A-TH10 (■■)			

Page	FORMER							NEW					
	Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark		
76	** MAIN BOARD **							*** MAIN BOARD ***					
	< CAPACITOR >							< CAPACITOR >					
	C406	1-163-038-91	CERAMIC CHIP	0.1uF	25V	(CX90ES/CX270: US, CND)		C406	1-163-038-91	CERAMIC CHIP	0.1uF	25V	
	C424	1-163-251-11	CERAMIC CHIP	100PF	5%	50V							
77	C491	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V		C491	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
78	< IC >							< IC >					
	IC406	8-759-430-89	IC LC372100PM-E42					IC406	8-759-461-76	IC LC372100PM-G-02			
	< RESISTOR >							< RESISTOR >					
	R421	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		R421	1-216-041-00	METAL CHIP	470	5%	1/10W
	R460	1-216-073-00	METAL CHIP	10K	5%	1/10W							
	R490	1-216-105-91	METAL CHIP	220K	5%	1/10W		R490	1-216-083-00	METAL CHIP	27K	5%	1/10W
	R491	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		R491	1-216-041-00	METAL CHIP	470	5%	1/10W
	R492	1-216-057-00	METAL CHIP	2.2K	5%	1/10W		R492	1-216-041-00	METAL CHIP	470	5%	1/10W
	R493	1-216-105-91	METAL GLAZE	220K	5%	1/10W		R493	1-216-089-91	METAL GLAZE	47K	5%	1/10W

4. BOARD CHANGED

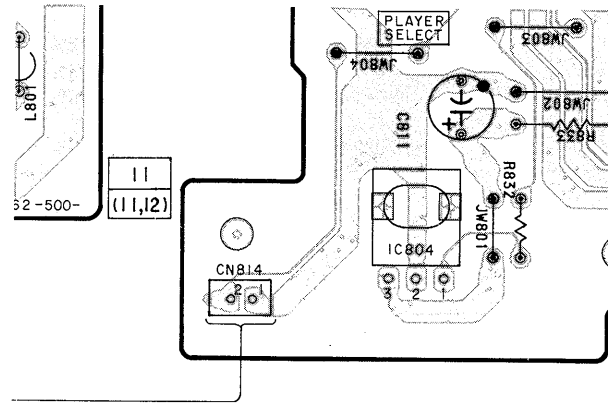
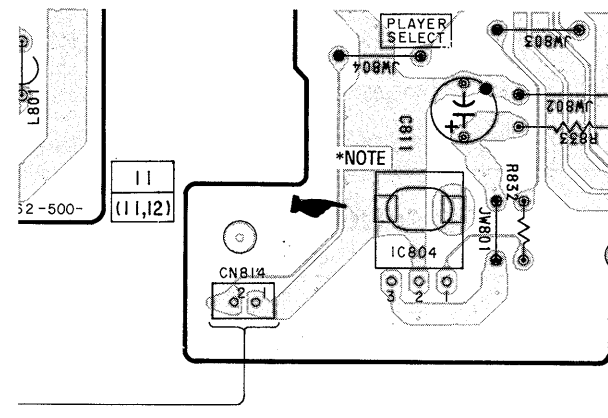
indicates changed portion.

Page	FORMER	NEW
46	[DISP BOARD] Location C-E, 22-23 1-662-501- (11, 12)	[DISP BOARD] Location C-E, 22-23 1-662-501- 12 13
49	[DISP BOARD] Location D-F, 19-22	[DISP BOARD] Location D-F, 19-22

Page	FORMER				NEW			
73	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	*** ELECTRICAL PARTS LIST ***				*** ELECTRICAL PARTS LIST ***			
	*** DISP BOARD ***				*** DISP BOARD ***			
	< CAPACITOR >				< CAPACITOR >			
					C812	1-162-286-11	CERAMIC 220PF 10% 50V	

5. BOARD CHANGE DEPENDING ON THE CHANGE OF IC804

 : indicates changed portion.

Page	FORMER				NEW			
45	[JOG BOARD] Location G-H, 12-13				[JOG BOARD] Location G-H, 12-13			
								
				1-662-502- 11 (11,12)				1-662-502- 12 (13)
75	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
	*** ELECTRICAL PARTS LIST ***				*** ELECTRICAL PARTS LIST ***			
	*** JOG BOARD ***				*** JOG BOARD ***			
	< IC >				< IC >			
	IC804	8-759-373-49	IC NJL54H400		IC804	8-759-459-84	IC NJL56H400 *NOTE	

*NOTE:

The JOG board has changed according to the change of IC804.
The new parts of IC804 is available to use for the former board.